Chapter 2
Report from the Distribution Working Group

- Approach to Environmental Accounting Targeting Environmental Conservation Activities -

Contents

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Introduction

Purposes of Establishing the Distribution Working Group

The "Guideline for Introduction of the Environmental Accounting System (2000 Version)" issued by the Ministry of the Environment (referred to as "Environmental Accounting Guideline (2000 Version)" classifies environmental conservation cost into the following categories in terms of business activities and environmental impact; "production/service activities" (classified further to "within the business area" and "up/down stream"), "management activities", "research and development activities", and "social activities." Cost against "environmental damage" is also added, making a total of six categories. This classification was designed so as to be able to be used in various business types and business categories, however, it is relatively closer to business activities of the manufacturing industry.

Direct environmental impacts are comparatively less in the distribution industry, which is a non-manufacturing industry, since it does not have production facilities as the manufacturing industry does (the distribution industry includes manufacturing retail, etc. and the industry modes vary). However, extended business hours are regarded as a problem in terms of energy conservation and it is closely related to the relationship with environmental problems. The distribution industry is closest to consumers and, considering the product manufacturing process and environment impact after use, the influence of the distribution industry that is in a position to supply products to consumers has a major influence.

Under these circumstances, the Distribution Working Group decided to organize the ideas that are useful for companies in the distribution industry to tackle environmental accounting and prepare the "Guide to Introduction of Environmental Accounting in the Distribution Industry." In "Activities of Research on Environmental Friendly Companies" (Ministry of the Environment) in 2000, about 40% of companies that have not introduced environmental accounting indicated "Do not know how to aggregate the information." On preparation of the Guide, the Distribution Industry Working Group compiled the information in a form that facilitates companies as prospective users of environmental accounting as well as those as existing users to tackle the project easily. To achieve this, the Group discussed and organized the sections that may become problems in the introduction of environmental accounting.

The Guide consists of five steps, from Section 2 to Section 6. Initially, the Guide indicates a procedure such as providing an overview of operation flow of the company and corresponding environmental conservation activities, collecting and organizing environmental accounting information such as environmental conservation effects and environmental conservation cost from the activities.

This Guide is an example for a company in the distribution industry intending to introduce environmental accounting. We hope that environmental accounting will be implemented in various forms using this Guide as the reference. This information may be useful for other industries also, as well as the distribution industry.

Structure of the Guide

The organization of this Guide is as follows:

a. Verifying the purposes of introduction of environmental accounting
→ See "Step 1. Verifying the Purposes of Introduction of Environmental Accounting"

This section organizes the purposes for introducing environmental accounting in the distribution industry.

This section introduces the purposes presented by the companies that are already implementing environmental accounting and the advantages, problems, and issues that have been clarified as a result of the introduction.

Through this information, companies that are to start environmental accounting are able to overview the tasks of environmental accounting in the distribution industry, such as purposes of tasks of environmental accounting for the companies that are already implementing and findings as a result of implementation.

b. Measuring environmental conservation activities in the distribution industry

→ See "Step 2 Measuring Environmental Conservation Activities in the Distribution Industry"

This section provides a summary of environmental conservation activities in the distribution industry according to the operation flow of the distribution industry.

The information can be classified in various ways according to the purpose of introducing environmental accounting. This Guide organizes major common environmental conservation activities in the distribution industry into an internal control table called "environmental conservation activity summary sheet." The "environmental conservation activity summary sheet" uses distribution industry operation flow as the column and "classification by the field of individual measures" as the row. This section specifies the range applicable to business activities of the company and then clarifies the environmental conservation activities that are actually tackled within the range by referencing the "environmental conservation activity summary sheet."

c. Summary of effects and cost of environmental conservation activities

→ See "Step 3. Organizing Effects and Cost of Environmental Conservation Activities"

This section organizes and describes the effects and cost of environmental conservation activities in the distribution industry under the following categories.

- Expected effects
- Effects that can be measured (in physical quantity units, monetary units)
- Cost that can be correlated to the effect that can be measured among the environmental conservation cost

This section describes these items relating to environmental conservation activities using actual examples.

d. How to proceed with actual operation of environmental accounting

→ See "Step 4 How to Proceed with Actual Operation for Introduction of Environmental Accounting"

Collect environmental accounting information for the environmental conservation activities that are tackled by the company. Organize the cost that can be correlated with the effect according to the summary method described in "c." for the environmental conservation activities that were clarified in "b." Then, collect the actual information.

This Guide introduces the "environmental conservation activity summary sheet" and information collection using an internal control table called "environmental conservation activity card" as one of the methods for proceeding with the actual operation. As an example, this Guide introduces cards that accept the following entries:

- Expected effects
- Effects that can be measured (in physical quantity units, monetary units)
- Cost that can be correlated with the effect that can be measured among the environmental conservation cost

Also

- Method of measuring data
- Source of data
- Issues and problems in assessing effects and cost
- Focusing point of descriptive information and actual examples

Using these information items, collect environmental accounting information in the environmental conservation activities that are tackled by the company.

e. How to organize environmental accounting information

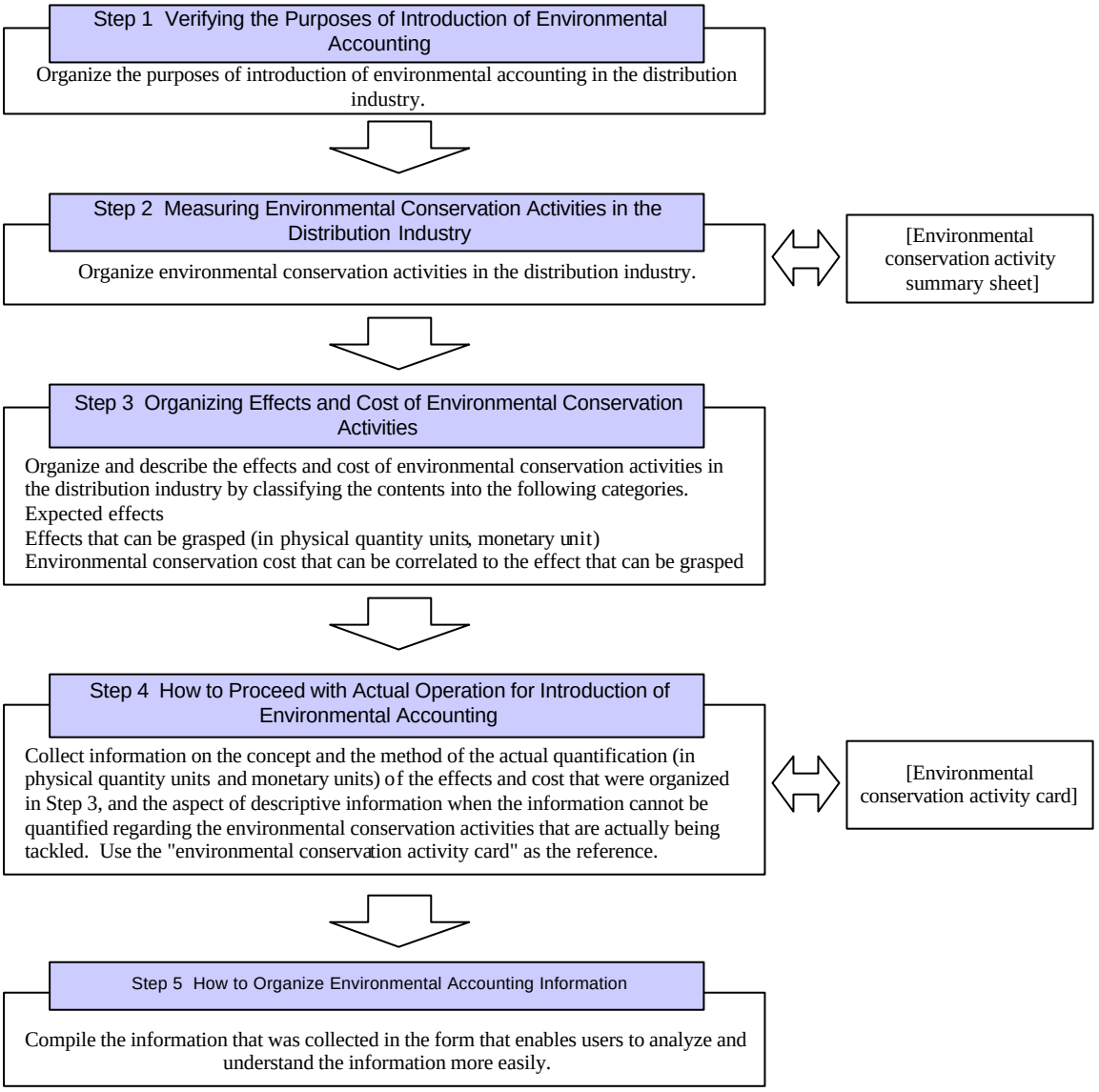
→ See "Step 5 How to Organize Environmental Accounting Information"

After collecting information on the effects and comparable cost of environmental conservation activities that are tackled by the company, compile the information in the form that enables users to analyze and understand more easily, considering the purpose of the introduction of environmental accounting.

This section shows some examples of compiling environmental accounting information using the "environmental conservation activity summary sheet" and the "environmental conservation activity card" that were introduced in this Guide. We hope these examples are useful for those who will start environmental accounting.

Figure 1 illustrates the contents of the Guide that were described above.

Figure 1 Flow of "Guide to Introduction of Environmental Accounting in the Distribution Industry"



[Guide to Introduction of Environmental Accounting in the Distribution Industry]

Step 1 Verifying the Purposes of Introduction of Environmental Accounting

1.1 Organizing the purposes of introduction of environmental accounting

In the distribution industry, what purposes can be considered for the introduction of environmental accounting?

The distribution industry alone involves many business conditions and organization modes including department stores, chain stores, and convenience stores, for example. And it covers a variety of business activities. Because of this diversity, the purposes for introducing environmental accounting may vary according to the company. However, even if the purposes are different, some common concepts may be found by organizing the contents along with the difference. Organizing of common sections and non-common sections may be useful for the companies that intend to tackle environmental accounting.

Based on the above, the purposes of introduction of environmental accounting that are indicated by the companies already implementing environmental accounting were organized into the following categories as preparation for creation of the Guide: a. Reason for introduction of environmental accounting, b. Purposes of environmental accounting information, c. Users of the information

a. Reason for introduction of environmental accounting

The following reasons are indicated by the companies that are already implementing environmental accounting in the distribution industry.

- Clarify the relationship between cost and effects and use the information for promotion of implementing environmental accounting
- Measure the annual cost and the effects of the items that are tackled of each division or shop, etc.
- Position clearly environmental conservation activities in business management.
- Measure cost and effects regarding environmental conservation and promote more efficient environmental management.
- Respond to the social demand (accountability) regarding information of environmental conservation activities intended for the public.

These reasons are classified into categories of internal functions and external functions of environmental accounting. In the "Environmental Accounting Guideline (2000 Version)" also, these two points are raised as the background and necessity for companies to tackle introduction of an environmental accounting system.

[Internal functions]

→ *For companies to tackle environmental conservation, it is important to know the investment effects and cost effectiveness for reasonable decision-making as well as further efficiency improvement of the implementation procedure. The information can be obtained by accurately measuring (measuring) the investment amount and the expense amount (environmental conservation cost) for environmental conservation of the company and aggregating and analyzing the results.*

[External functions]

→ *These days, announcement of various types of information relating to the task of environmental conservation by companies through, for example, environmental reporting is requested from various sectors and the contents of the information and announcement condition are becoming the measures for evaluating the company. As one of the important items that are announced by the company, inclusion of environmental accounting information is expected.*

These are the main reasons for companies to introduce environmental accounting.

b. Purposes of environmental accounting information

The way of understanding cost and effects of environmental conservation activities is expected to vary according to the purpose for using environmental accounting. It is important to indicate the "purposes of environmental accounting information" correctly to avoid any misunderstanding of users of the information.

The following "purposes of environmental accounting information" are indicated by the companies that are already implementing environmental accounting in the distribution industry

- Indicate the summary (overview) of the environmental conservation activities that are tackled by the company.
- Organize the tasks of the company according to the purpose of environmental conservation and indicate the cost effectiveness internally and externally.
- Collect and provide the materials for judgment of budget distribution for environmental conservation activities
- Sum up the cost and effects associated with environmental conservation for a fixed period for each of the divisions and shops and implement more efficient environmental conservation policies in the future.
- Provide information required for reviewing the expenses for waste disposal and recycling subcontracting expenses.
- Measure the details of tasks relating to waste processing measures among the environmental conservation activities that are realized through cooperation and understanding of customers.

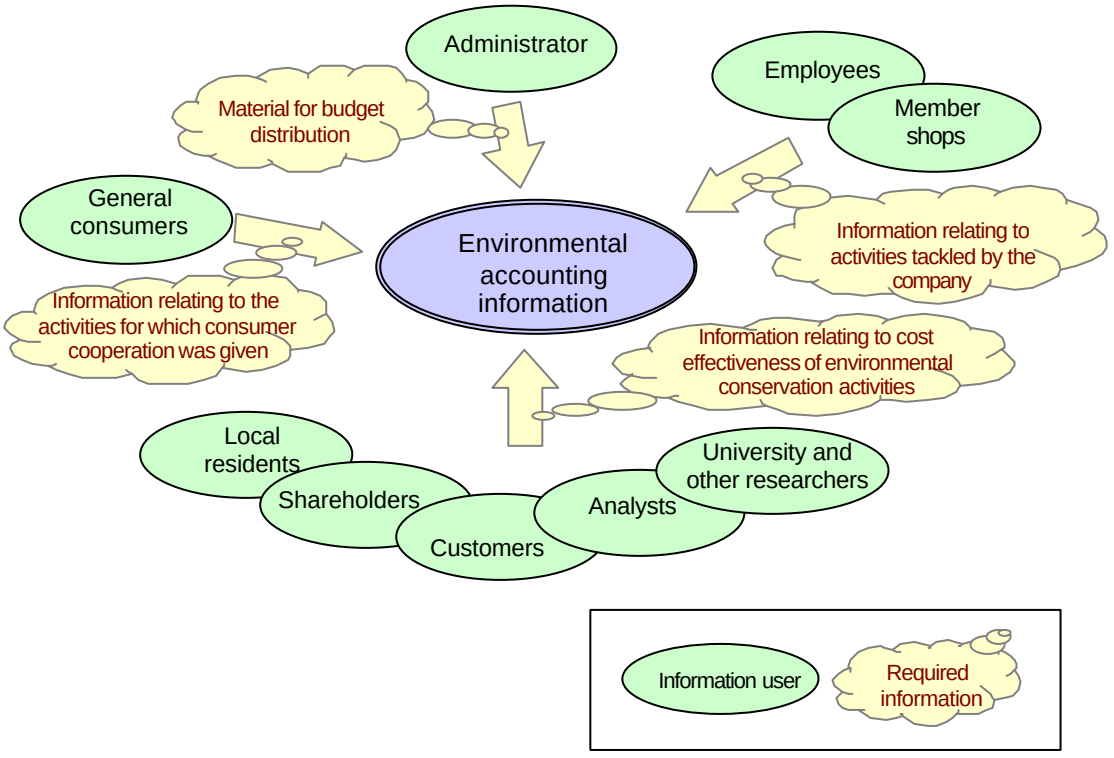
Some companies indicate the measurement of environmental conservation activities of the entire company as the "purpose of environmental accounting information", while others indicate aggregation and analysis by focusing on some specific section as the purpose. For solving management problems, detail analysis of specific tasks may be carried out as the next step by the company that has measured the entire activities. In some cases, a section is focused on initially and the process progresses to the entire company.

c. Users of the information

The reporting target of environmental accounting information is assumed to be determined by the "reason for introduction" or "purpose of environmental accounting information." The employees or the member shops will be the target of the information on the environmental conservation activities that are tackled by the company and information on cost effectiveness of environmental conservation activities will be targeted to shareholders, etc. Administrators may use environmental accounting information as the material for judgment of budget distribution for environmental accounting activities. In such an industry as the distribution industry where environmental conservation activities (for instance, recycling by collection at storefront) are achieved by cooperation and understanding of customers, general consumers may request information of environmental conservation activities intended for the public regarding the activities in which they have cooperated.

Aggregation results of environmental accounting needs to be organized in a form that facilitates users to understand and analyze the information. At collection and analysis of environmental accounting information, it is important to constantly be aware of the users of the information.

Figure 2 Users of environmental accounting information in the distribution industry (Example)



As described above, the purposes of introduction of environmental accounting vary. When the "purpose of environmental accounting" is clear, organize the contents according to the purpose. The company that intends to introduce environmental accounting may not have a clear purpose. In such a case also, environmental accounting may be introduced as a trial. The purpose will be clarified from the advantages, problems, issues that become clear as a result of introduction of environmental accounting and the sense of purpose for implementing environmental accounting becomes clear by tackling the purposes that were clarified. This contributes to effective and efficient environmental conservation activities.

1.2 Referencing Actual Examples of Advantages, Problems, and Issues that were Clarified by Introduction of Environmental Accounting

This section introduces the "advantages obtained as a result of introduction of environmental accounting" indicated by the companies that have already introduced environmental accounting in the distribution industry.

[Advantages obtained from the result]

- The expense required for disposing of waste is higher than the expense required for recycling (= recycling is the better option).
  - → Recycling requires more handling by employees for sorting and removing foreign objects. However, clarification of such activities gave the employees the awareness of recycling.
  - → To achieve cost merit, reasonable recycling without requiring high expenses is important such as use of a return trip of delivery vehicle and such mechanism was promoted.
- Requirement of high cost for waste disposal and recycling subcontracting was clarified.
  - → Allocation of a considerable amount of cost to collection for recycling could be explained to customers and the necessity for some measures for this item was clarified.
  - → This clarification gave the opportunity for examination of reduction or reuse of waste.
- The existence of green purchase that does not require extra cost was clarified.
  - → Construction of a reasonable mechanism was proven to be effective in the tasks for both the environmental and management aspects.

The following problems and issues were also clarified as well as advantages.

[Problems and issues]

- Many items of environmental conservation cost cannot be measured accurately. Calculation of the cost by separating it accurately cannot be defined easily (also applicable to effects),
- Many cost items are integrated into normal operation and only a small number of items can be clearly separated (unreasonable apportionment causes loss of reliability and clarity).
- Data collection and organization require a considerable amount of handling. A handling mechanism is necessary also to improve the precision of data that is collected.

As various problems and issues are indicated from the companies that have already introduced environmental accounting, companies that will tackle the introduction may encounter similar problems and issues. However, environmental accounting may be started and meaningful even if these problems and issues have not been solved. Companies that have already introduced environmental accounting are also implementing while examining the findings and advantages gained by the introduction of environmental accounting. Those who are to start environmental accounting are advised to examine the ways of handling their problems and issues by the companies that have already introduced the environmental accounting, using this Guide as the reference. We hope that the greater the number of examples announced, the more development of environmental accounting progresses in the distribution industry.

Step 2 Measuring Environmental Conservation Activities in the Distribution Industry

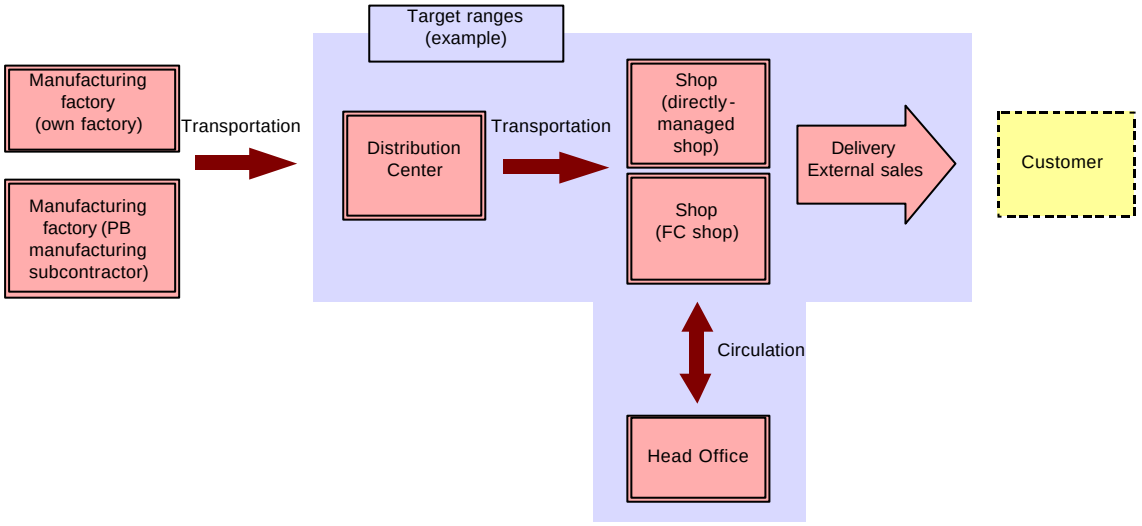
2.1 Verifying the Business Activity Range of the Company

To measure environmental conservation activities in the distribution industry, initially the business activity range of the company must be verified. The business activity ranges in the distribution industry may include the following stages in the operation flow and the head office. (There are stages other than those indicated here according to the organizational configuration.)

- Manufacturing factory (own factory, private brand (PB) manufacturing subcontractor, etc.)
- Distribution Centers
- Shops (directly-managed shops, franchise (FC) shops, etc.)
- Transportation and circulation (manufacturing factory → Distribution Center → shop, shop <-> Head Office, etc.)
- Delivery and external sales

Among those, initially verify the ranges that are targeted by the business activities of the company. For instance, in following example, the target ranges are the distribution center, shops (directly managed shop and franchise (FC) shop) delivery (or external sales), the head office, and each transportation stage.

Figure 3 Example of operation flow and target ranges in the distribution industry



Target ranges vary according to the company since some companies are providing external sales services while other use outsourcing for distribution. It is important to accurately measure to which sections in the operation flow the target ranges of the business activities of the company belong, before outlining the environmental conservation activities.

2.2 Referencing Main Environmental Conservation Activities in the Distribution Industry

This section provides an overview of the main environmental conservation activities in the distribution industry.

What environmental conservation activities are available in the distribution industry? The classification method varies according to the purpose of introducing environmental accounting. This Guide prepared an "environmental conservation activity summary sheet" and organizes environmental conservation activities based on the sheet. The sheet uses the operation flow, which is a common element regardless of the purpose, as the column and "classification by field of individual measures", which is attracting comparatively strong interest in the distribution industry, as the row of the table. Table 1 shows an environmental conservation activity summary sheet.

Table 1 Environmental conservation activity summary sheet

		Operation flow in the distribution industry							
		1. Manufacturing factory (own factory/PB manufacturing commissioning)	2. Distribution Center	3-1. Shop (directly-managed shop/ FC shop)	3-2. Conservation activities achieved by cooperation and understanding of customers	4. Transportation and circulation	5. Delivery and external sales	6. Head Office	7. Others
Classification by field of individual measures	Waste measures								
	Facility measures								
	Physical distribution measures								
	Product measures								
Management activities, social activities, etc.	Environmental management								
	Social activities and communication								

Details of Table 1 are described below.

In the column, activities are classified according to the operation flow of business activities in the distribution industry. This is created based on the classification of the operation flow that was used for verification of operation activity ranges in Section 2.1. For shops, activities are classified into the items that can be achieved by approval within the company such as "use of recycled furnishings" (to fresh aprons, name cards, and copy papers) and items that can only be achieved by cooperation and understanding of customers such as collection of trays at the storefront. The method of measuring environmental accounting information varies according to the organization mode such as directly managed shops and franchise (FC) shops. However, these are integrated to one item since hardly any difference was detected from environmental conservation activities themselves.

* Fields that were picked up as individual measures

<Waste measures>

The distribution industry, while supplying to consumers the products with container packaging, is obliged to bear the expense incurred for commissioning of "Suitable waste disposal" and "suitable container packaging recycle disposal", for which some operators collect and recycle various types of waste at shops. For these reasons, waste disposal measures seem to receive much attention in the distribution industry. There are various types of waste disposal handlings in mixed mode such as handling of control of waste generation and handling based on recycling such as storefront collection for recycling and there are various concepts regarding the effects and cost measuring method.

<Facility measures>

Considerations to buildings including energy conservation and water conservation are important items since extension of business hours and energy conservation by shops impose serious influence on business revenues. Buildings may be demolished due to preparation for new shops or closing of shops. In this Guide, an environmental conservation activity associated with observation of laws and regulations such as the Large-Scale Retail Stores Location Law is considered as one of the facility measures.

<Physical distribution measures>

Recently, many companies use outsourcing for physical distribution. Environmental consideration to a physical distribution system such as use of low-pollution vehicles is expected to be closely related to the distribution industry. In this Guide, the task in delivery and external sales is considered to be one of the physical distribution measures.

<Product measures>

As a common item in the distribution industry, an action, "selling products", can be suggested. A field of product measures was allocated based on the idea that environmental conservation activities relating to products such as product information including environmental consideration to packaging materials are very important in handling the tasks of environmental issues in the distribution industry. In actual selection and development of the products with environmental consideration, requests and cooperation to suppliers may become essential. Although not directly related to products, the handling of sales promotion tools such as catalogs, brochures, and leaflets can also be regarded as an item specific to the distribution industry.

In the row, the items were classified into "classification by field of individual measures", which is attracting interest in the distribution industry and "management activities and social activities", which are common handlings among various industries such as environmental management and social activities. The "classification by field of individual measures" is further classified into the following categories.

- Waste disposal measures
- Facility measures
- Physical distribution measures
- Product measures

"Management activities and social activities" are further classified into the following categories.

- Environmental management
- Social activities and communication

Individual measures may involve more fields other than the four fields indicated above. However, in this Guide those that were mainly discussed in the Distribution Working Group are taken up.

Table 2 shows summarization of the main examples of environmental conservation activities in the distribution industry into the "environmental conservation activity summary sheet." The environmental conservation activities indicated there are the results of extraction and summary of main items tackled in the distribution industry based on environmental reporting of some companies. Table 2 indicates environmental activities of the distribution industry over as wide a coverage as possible, and some items may not be applicable depending on the company.

2.3 Measuring Environmental Conservation Activities in the Business Activity Range of the Company

This section measures environmental activities in the business activity range of the company.

Based on the information in Section 2.1 the business activity range of the company, and Section 2.2 the overview of main environmental conservation activities in the distribution industry, environmental conservation activities in the business activity range of the company are clarified.

Table 2 lists environmental conservation activities in the distribution industry as much as possible.

The column in Table 2 forms the operation flow of business activities of the distribution industry. By focusing on a stage of the business activity flow, for instance a material distribution center and checking the column in the vertical direction, a summary of major environmental conservation activities can be referenced. The tasks in shops and the Head Office can be referenced in the same way.

Refer to Table 2 from the row. The row in table 2 shows classification of major individual measures in the distribution industry. For instance, by checking a row of waste disposal measures of individual measures in the horizontal direction, a summary of major environmental conservation activities for waste in the business range of the company can be referenced.

By referencing Table 2 from the vertical direction and the horizontal direction, environmental conservation activities in the business activity range of the company can be measured and organized. In particular, since Table 2 shows as many environmental conservation activities as possible in the distribution industry, the table will be useful for detecting the items that have not been recognized as environmental activities although they have already been tackled by the company.

Table 2 List of main environmental conservation activities in the distribution industry

By measure (effects) \ By operation flow		1. Manufacturing factory (own factory/PB manufacturing commissioning)	Control number	2. Physical distribution center	Control number	3-1. Shop (directly-managed shop/FC shop)	Control number
Classification by individual measures	Measures for waste (Resource circulation) (Global environmental conservation) (Pollution prevention)	- Implementing waste disposal (Resource waste recycling) (Suitable waste disposal) - Use of recycled furnishing 〜		- Implementing waste disposal (Resource waste recycling) (Suitable waste disposal) - Use of recycled furnishing 〜		- Implementing waste disposal (Resource waste recycling) (Suitable waste disposal) - Reduction of the amount of forms used by improvement of scan inventory-taking rate - Use of recycled furnishing - Reduction of the amount of detergent used - Sale of products in clearance sales - Garbage dehydration processing 〜	
	Facility measures (Resource circulation) (Global environmental conservation) (Pollution prevention)	- Use of recycled building materials - Introduction of water conservation equipment - Introduction of energy conservation equipment - Use of heat insulation external wall material - Replacement of devices that do not use CFCs - Smoke and soot measurement - Septic tank control - Garbage chamber cooling construction - Modification of product carry-in passage floor 〜		- Use of recycled building materials - Introduction of water conservation equipment - Introduction of energy conservation equipment - Use of heat insulation external wall material - Replacement of devices that do not use CFCs - Smoke and soot measurement - Septic tank control - Garbage chamber cooling construction - Modification of product carry-in passage floor 〜		- Use of recycled building material - Installation of rainwater usage facilities - Introduction of water conservation equipment - Introduction of groundwater utilization system - Use of heat insulation external wall material - Rooftop vegetation - Replacement to devices that do not use CFCs - Gasoline trap control - Grease srap control - Septic tank management - Garbage chamber cooling construction - Modification of product carry-in passage floor - Modification of PCB storage box - Improvement of loading/unloading facilities - Securing parking space - Revegetation 〜	
	Physical distribution measures (Resource circulation) (Global environmental conservation) (Pollution prevention)						
	Product measures (Resource circulation)	- Environmental consideration to packaging materials 〜				- Environmental consideration to advertising media - Installation of environmentally conscious product sales corner 〜	
Management activities and social activities	Environmental management	- EMS operation - ISO auditing and internal environmental auditing - External lecturers and preparation of environmental education materials for employees - Handling compliances - Thorough risk management 〜		- EMS operation - ISO auditing and internal environmental auditing - External lecturers and preparation of environmental education materials for employees - Handling compliances - Thorough risk management 〜		- EMS operation - ISO auditing and internal environmental auditing - External lecturers and preparation of environmental education materials for employees - Handling compliances - Thorough risk management 〜	
	Social activities Communication	- Preparation of environmental reporting and posters - Support for environmental protection organizations - Environmental donation activities 〜		- Preparation of environmental reporting and posters - Support for environmental protection organizations - Environmental donation activities 〜		- Preparation of environmental reporting and posters - Support for environmental protection organizations - Environmental donation activities 〜	

(Classification by operation flow and by field)

3-2. Conservation activities achieved by cooperation and understanding of customers among the shop activities	Control No.	4. Transportation and circulation	Control No.	5. Delivery and external sales	Control No.	6. Head office	Control No.
- Implementing waste disposal (Recycling by collection at storefront) - Bring-Your Own Bag campaign - Reduction of distribution of free plastic bags - Handing over disposable chopsticks on request - Changing plastic shopping bags (materials) 〜						- Implementing waste disposal (Recycling resource waste) (Suitable waste disposal) (Container packaging recycling processing) - Use of recycled furnishing 〜	
- Introduction of energy conservation equipment 〜						- Use of recycled materials - Introduction of water conservation equipment - Introduction of energy conservation equipment - Use of heat insulated external wall - Smoke and soot measurement 〜	
		- No idling - Shared transportation and effective use of return trip - Review of distribution route - Tote box and hanger delivery - Improvement of material handling (Silencing handling and weight reduction) - Introduction of low pollution vehicles (Including DPF installation) 〜		- No idling - Review of distribution route - Tote box and hanger delivery - Introduction of low pollution vehicles (Including DPF installation) 〜			
						- Research and development of environmentally conscious products 〜	
						- EMS operation - ISO auditing and internal environmental auditing - External lecturers and preparation of environmental education materials for employees - Handling compliances - Thorough risk management 〜	
						- Preparation of environmental reporting and posters - Support for environmental protection organizations - Environmental donation activities 〜	

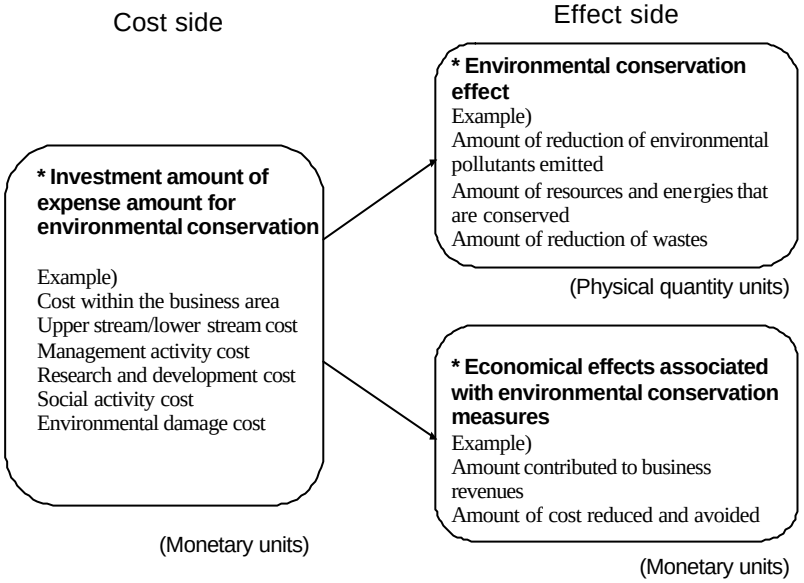
* This table lists as many environmental conservation activities as possible. Note that some items are applicable and some are not according to the company.

Step 3 Organizing effects and cost of environmental conservation activities

This section describes the effects and cost in environmental conservation activities.

The information that is handled in the framework of environmental accounting is arranged into three categories, information in monetary units, information in physical quantity units, and descriptive information.

Such information is arranged as following in the "Environmental Accounting Guideline (2000 Version)."



The "Environmental Accounting Guideline (2000 Version)" proposes two methods for measuring effects associated with environmental conservation measures. They are the <1> "physical quantity units" suitable for measuring (measuring) the amount of environment impact and the increase/decrease and the <2> "monetary units" suitable for measuring operation revenues that were obtained or reduction or avoidance of cost achieved by the company as a result of environmental conservation measures.

In this Guide, the effects and cost of environmental conservation activities in the distribution industry were arranged in the following categories.

- Expected effects corresponding to the original purpose of environmental conservation activities (effects associated with environmental conservation measures in the "Environmental Accounting Guideline (2000 Version)" such as resource circulation, global environmental conservation, pollution prevention, etc.)
- Effects that can be actually measured quantitatively with some method ("environmental conservation effects" in physical quantity units and "economical effects associated with environmental conservation measures" by monetary units)
- Cost that can be correlated with the "effects that can be measured" among the environmental conservation cost that was required for environmental conservation activities.

Among the "effects that can be measured" mentioned above, those that can be measured in physical quantity units are mainly applicable to "environmental conservation effects" and those that can be measured in monetary units are mainly applicable to "economical effect associated with environmental conservation measures" in the "Environmental Accounting Guideline (2000 Version)."

In the distribution industry with smaller investments in production facilities compared with the manufacturing industry, the cost for environmental conservation activities that are integrated with the normal operation becomes more noticeable. The "Environmental Accounting Guideline (2000 Version)" proposes a method that can be handled practically such as aggregation of balances and apportionment aggregation. A suitable measuring (measuring) method varies according to the purpose of environmental accounting introduction. Based on these circumstances, the Distribution Working Group initially arranged the effects that can be comparatively commonly recognized and then the cost that can be correlated to the effects. The next page shows the arrangement examples.

- Examples of effects and cost of environmental conservation activities in the distribution industry

[Example 1]

Operation flow: Environmental conservation activities achieved by cooperation and understanding of customers among those in the category of 3-2. Shop.

- Environmental conservation activity: Introduction of energy conservation equipment
- Expected effects: Effects related to global environmental conservation (prevention of global warming)
- Effects that can be measured
  (Physical quantity units): Reduction of the amount of energy consumed
  (Monetary units): Saving light and fuel expenses
- Cost correlated with the effects that can be measured among the environmental conservation cost
  Expenses required for introduction of energy conservation equipment, etc.
  (Difference between the cost of purchasing environmentally conscious products and the cost of purchasing existing products and facility cost, etc.)

[Example 2: Examples where multiple effects can be expected]

Operation flow: 4. Transportation and circulation

- Environmental conservation activity: No idling
- Expected effects: Pollution prevention (prevention of air pollution), global environmental conservation (prevention of global warming), and resource circulation (efficient use of resources)
- Effects that can be measured
  (Physical quantity units): Reduction of air pollutants, reduction of greenhouse gases, and reduction of fuel and consumption cost
  (Monetary units): Saving fuel cost
- Cost correlated with the effects that can be measured among the environmental conservation cost
  Cost for preparing posters and stickers for promotion movements and cost for purchasing key chains attached to the belts of drivers, etc.

[Example 3: "Economical effects by avoiding risks"]

Operation flow: 1-1. Own factory/2. Physical distribution center

- Environmental conservation activity: Control of septic tank
- Expected effects: Pollution prevention (water pollution control)
- Effects that can be measured:
  (Physical quantity units): Control of water quality pollutant (prevention of occurrence)
  (Monetary units): Saving the cost for recovering the river condition to the original condition
- Cost correlated with the effects that can be measured among the environmental conservation cost
  Cost required for installation and management of a septic tank (installation cost and management cost)

* *"Economical effects by avoiding risks" is not discussed in the report by the Distribution Working Group. See Chapter 1, "Report from Electronic and Electric Working Group" for the discussion of the economical effects.*

[Example 4: Management activity]

Operation flow: 1-1. Own factory/2. Physical distribution center/3-1. Shop/6. Head office

- Environmental conservation activity: EMS operation
- Expected effects and effects that can be measured (physical quantity units and monetary units): None
- Cost correlated with the effects that can be measured among the environmental conservation cost
  Cost required for operation of EMS (personnel cost, EMS operation cost, etc.)

* Cost required for commissioning "suitable waste disposal" and "suitable container packaging recycling disposal"

As a business operator, the distribution industry, while supplying products associated with container packages to consumers, is obliged to bear the cost required for commissioning "suitable waste disposal" and "suitable container packaging recycling processing" such as collection and recycling of various materials at storefronts. Under the circumstance, waste disposal measures in the distribution industry seem to attract much attention.

The cost required for commissioning "suitable waste disposal" indicates the cost paid for commissioning appropriate treatment of waste generated from the manufacturing factory, physical distribution center, shops, and head office to the processing operators of general business waste or industrial waste. The cost required for commissioning "suitable container packaging recycling disposal" indicates the cost required for reproduction commissioning that is paid to the specified corporation as regulated in the "Law for promotion of sorted Collection and Recycling of Containers and Packaging" (Containers and Packaging Recycling Law).

In the arrangement of this Guide, the "effects that can be measured" associated with environmental conservation activities such as "resource waste recycling" and "environmental consideration to packaging materials" are measured as "saving of the cost required for commissioning suitable waste disposal" and "saving of the cost required for commissioning product reproduction." However, the "cost required for suitable waste disposal" and "waste required for commissioning product reproduction" are not measured. Since these types of cost are definitely required in any business activities, various opinions were submitted in the meetings of the Distribution Working Group as to whether they are to be included as environmental accounting cost. The handling of these types of cost varies according to the purpose of introducing environmental accounting. However, since the items cannot be ignored in the distribution industry, they are handled as one of the "implementing waste disposal" in Table 2, "Environmental conservation activity summary sheet."

Step 4 How to Proceed with Actual Operation for Installation of Environmental Accounting

This section describes how to collect environmental accounting information regarding environmental conservation activities that are actually tackled by company. The collection procedure is as follows.

1) Clarify the environmental conservation activities that are actually tackled by the company. (See Section 2.3 in Step 2.)
2) Organize the effects and cost of the environmental conservation activities that were clarified in 1) according to the summarization method that was introduced in "Step 3, Organizing effects and cost of environmental conservation activities."
3) Collect actual information as indicated in 2).

In information collection, it is advisable to organize environmental accounting information that is considered to be important for individual environmental conservation activities. The type and the form of the information that is organized vary according to the company. The example that is introduced in this Guide uses the "environmental conservation activity card" that is shown on the next page. The following items can be entered in the "environmental conservation activity card" that is introduced here:

- Expected effects
- Effects that can be measured (physical quantity units and monetary units)
- Cost that can be correlated with the effects that can be measured among the environmental conservation cost

In addition, the following items can be entered.

- Method of measuring data
- Source of data
- Issues and problems in assessing effects and cost
- Focusing point of descriptive information and actual examples

Such environmental accounting information is organized in one card for each environmental conservation activity. These cards may be useful tools for those who proceed with actual operation. By storing this information in databases, users may be able to analyze the information easily.

Entry example

[Environmental Conservation Activity Card]

Internal Control No.	

Operation flow	Major classification	3. Shop
	Medium classification	3.2 Conservation activities achieved by cooperation and understanding of customers among the shop activities

a. Environmental conservation activity	Installation of energy conservation equipment

b. Expected effects	
	Effects related to global environmental conservation (prevention of global warming)

c. Effects that can be measured	
(Physical quantity units)	Reduction of the amount of energy consumption
(Monetary units)	Saving light and fuel expenses

d. Cost that can be correlated to the "c. Effects that can be measured" among the environmental conservation cost	
(Monetary units)	Expenses required for introduction of energy conservation equipment (Difference between the cost of purchasing environmentally conscious products and the cost of purchasing existing products and facility cost, etc.)

e. Supplementary information	
1. Method of measuring data	[Effect] Measured based on the amount of reduction in the consumption of electricity and gas, etc. [Cost] Measured by the difference between the cost of purchasing environmentally conscious products and the cost of purchasing existing products
2. Source of data	■ Office (shop, etc.) □ Head Office □ Others
3. Issues and problems in assessing effects and cost	[Effect] Measuring quantitative effects (physical quantity units) is difficult. The values often have large differences with catalog values.
4. Focusing point of descriptive information and actual examples	● Describe the fact that the activity is achieved by cooperation and understanding of customers. ● Describe also the improvement rate as well as the amount of improvement. ● Describe the actual tasks. ● Stipulation of the emission coefficient used for calculation of the greenhouse gas reduction effect is necessary. ● There are various ways in handling the case where the purchasing cost of the existing products is higher than the purchasing cost of environmentally conscious products.

* Example of "Environmental conservation activity card" (see the previous page)

The following items can be entered in the "environmental conservation activity card" that is introduced in this Guide for (a) each environmental conservation activity as described in the previous chapter:

- Expected effects (b)
- Effects that can be measured (physical quantity units and monetary units) (c)
- Cost correlated to the effects that can be measured among the environmental conservation cost (d)

In addition, the following items can be entered.

- Method of measuring data (e1)
- Source of data (e2)
- Objectives and problems in assessing effects and cost (e3)
- Focusing point of descriptive information and actual examples (e4)

Information on (b), (c), and (d) that is described in the "environmental conservation activity card" is described in the previous chapter.

(e1) to (e4) are summary examples of environmental accounting information. These items are considered to be important. The items are assumed to be entered under the following viewpoints:

<Method of measuring data (e1)>

This item describes how to actually measure the information indicated in (b), (c), and (d). For instance, the item describes the aggregation know-how such as "Measured based on the amount of reduction in the consumption of electricity and gas" and "Measured by the difference between the cost of purchasing environmentally conscious products and the cost of purchasing existing products."

<Source of data (e2)>

This item is designed so that users can sequentially check the source of the data.

<Issues and problems in assessing effects and cost (e3)>

This item describes issues and problems for the items that cannot be easily measured as the actual quantities although the methods of concrete effects and cost for environmental conservation activities could be captured.

<Focusing point of descriptive information of actual examples (e4)>

This item describes the contents that could not be explained in (e1), (e2), and (e3) and the supplements.

The tasks that cannot be measured quantitatively should be indicated descriptively. It is also convenient to introduce methods for avoiding the expression that may cause misunderstanding in the task such as "Describe also the improvement rate as well as the amount of improvement" and "compare the environmental impact reduction amount per sheet of paper."

Step 5. How to organize environmental accounting information

After collecting information on the effects and cost of environmental conservation activities that are tackled by the company, organize the information so that users can understand the information easily, based on the purpose of introducing environmental accounting.

This Guide shows some examples of how to organize the information using the "environmental conservation activity card" according to the purpose and usage, by actually using the column (operation flow) and row (individual measures) of the "environmental conservation activity summary sheet". It is important to accurately explain how to utilize the result that was organized and what can be detected from environmental accounting, not simply aiming for summary of environmental accounting.

5.1 Organizing Environmental Accounting Information in the Entire Business Activity Range of the Company

* Assumed purpose →	To express the summation (outline) of the environmental conservation activities that are tackled by the company

The common objective of introduction of environmental accounting is to improve the efficiency and enhance the effects of environmental conservation tackled by the company. To achieve the objective, it is important to measure the actual cost spent for the environmental conservation activities that have been implemented so far and the effects that have been achieved by the activities.

Based on this, this Guide introduces an example of organizing environmental accounting information that was collected by capturing the business activity range of the company. Clarify the business activity range of the company and environmental conservation activities according to the procedure described in "Step 2. Measuring environmental conservation activities in the distribution industry". Then, organize and summarize environmental accounting information that was collected in "Step 4. How to Proceed with Actual Operation for Installation of Environmental Accounting." The aggregation format should be created in the format that can express individual information most appropriately.

As an example, Figure 4 shows a company that is commissioning manufacturing of private brand products and using outsourcing for physical distribution. The sections indicated by ■ belong to the business activity range of the company. The procedure is as follows: <1> Clarify the business activity range and environmental conservation activities of the company, and then <2> organize and aggregate environmental accounting information in each environmental conservation activity.

5.2 Reorganizing Environmental Accounting Information by Changing the Expression Method

Section 5.1 showed an example of organizing environmental accounting information that was collected by capturing the entire business activity of the company. Environmental accounting is not completed by creation of a table. It is important to organize the information so that users can understand the purpose of classification and organization of the environmental accounting information and what can be detected from the table.

a. For instance, reorganize the information by the purpose of environmental conservation.

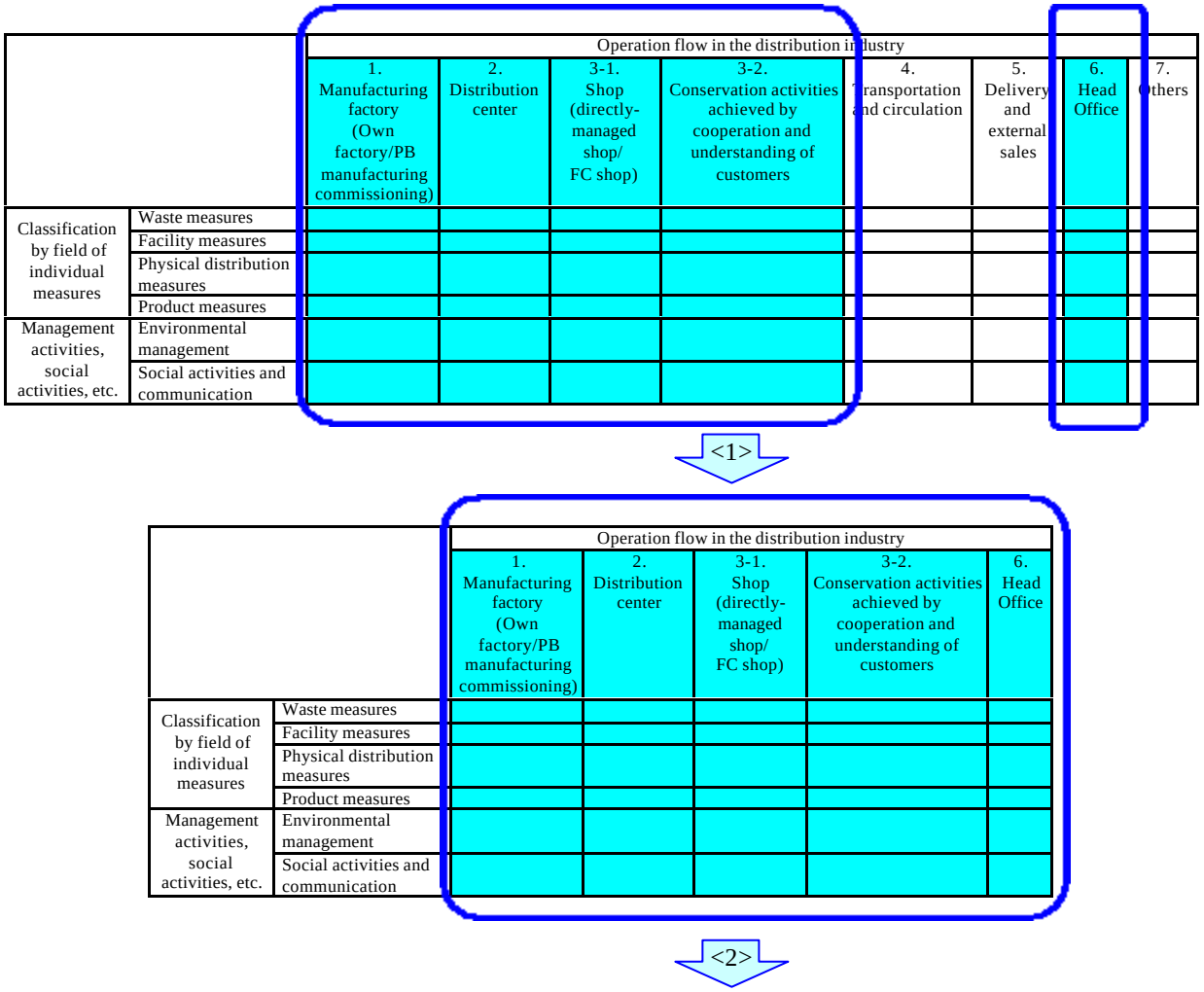
* Assumed purpose →	Organize the tasks of the company by the environmental conservation purpose and indicate the cost effectiveness internally and externally.

In Section 5.1, which introduces the procedure for organizing environmental accounting by capturing the entire business activity range of the company, Figure 4 shows an example of the aggregation by "classification by field of individual measures" after capturing the entire business activity range of the company. There are some more activity classification methods other than "classification by field of individual measures."

The "Environmental conservation activity card" that introduced in "Step 4 How to Proceed with Actual Operation for Installation of Environmental Accounting." For instance, there is an item called "expected effects." By organizing environmental conservation activities based on the information, tasks can be classified for each environmental conservation purpose (see Figure 5). As an example of classification format by environmental conservation purpose, the format presented in the "Environmental Accounting Guideline (2000 Version)" can be mentioned.

Figure 4 Capturing environmental accounting information in the entire range of business activity of the company

(Example: Company that is manufacturing and selling private brand products through OEM and outsourcing physical distribution)

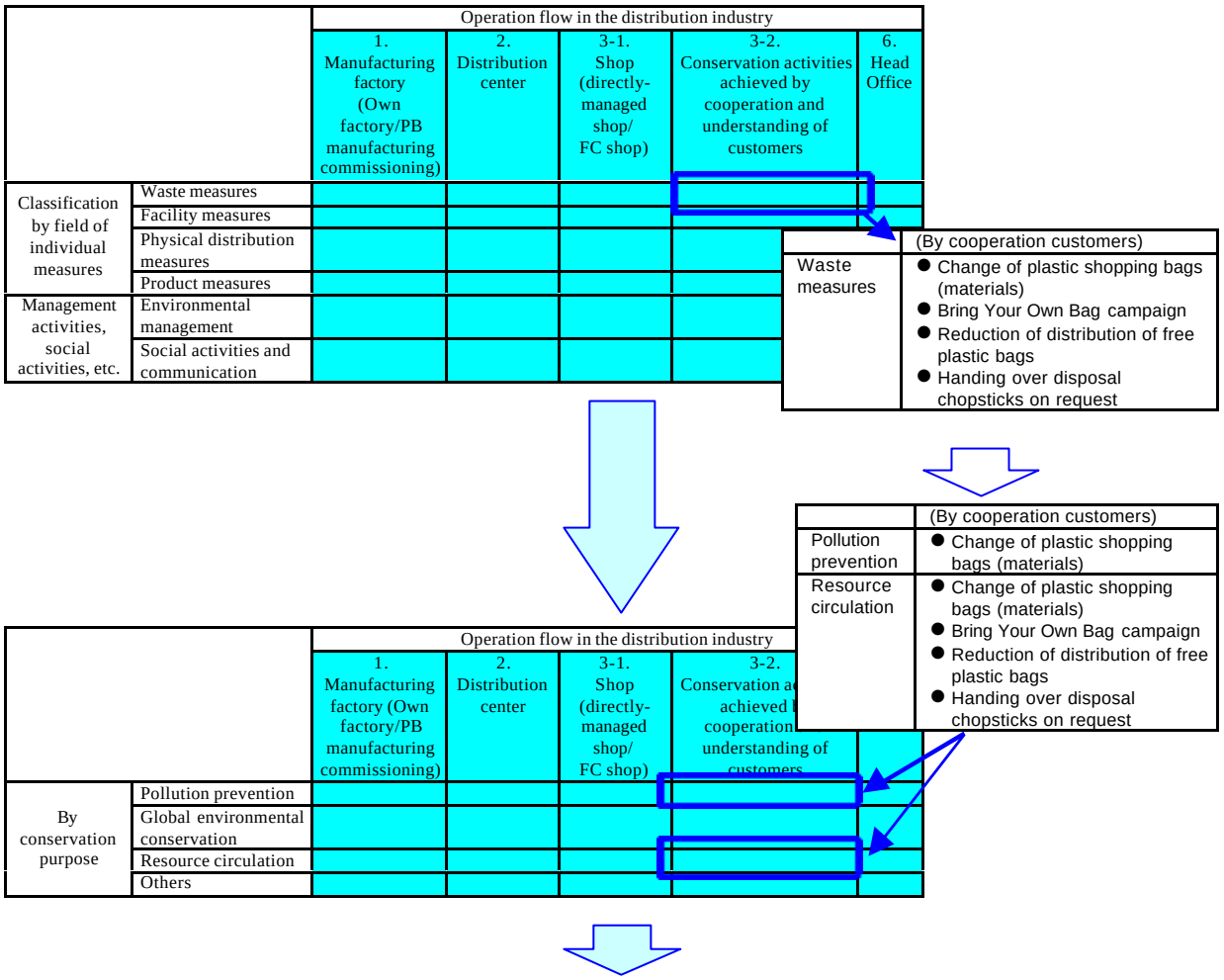


Organize environmental accounting information's for the environmental conservation activity and fill in the column.
(An example format organized according to the field of the measures)

		Content of main tasks	Environmental conservation cost	Environmental conservation effects	Economical effects associated with environmental conservation measures	Descriptive information
Classification by field of individual measures	Waste measures					
	Facility measures					
	Physical distribution measures					
	Product measures					
Management activities, social activities, etc.	Environmental management					
	Social activities and communication					
"Environmental conservation activity card" (Reference)		*a.*	*d.*	*c. (Physical quantity units)*	*c. (Monetary units)*	*e.*

Figure 5 Example of describing a different classification method

(Classifying the example shown in Figure 4 according to its environmental conservation purposes)



Organize environmental accounting information for the environmental conservation activity and fill in the column.
(An example format organized according to conservation purposes)

		Contents of main tasks	Environmental conservation cost	Environmental conservation effects	Economical effects associated with environmental conservation activities	Descriptive information
By conservation purposes	Pollution prevention					
	Global environmental conservation					
	Resource circulation					
	Others					
"*Environmental conservation activity card*" *(Reference)*		*a.*	*d.*	*c. (Physical quantity units)*	*c. (Monetary units)*	*e.*

b. Re-organize the information focusing on a specific department.

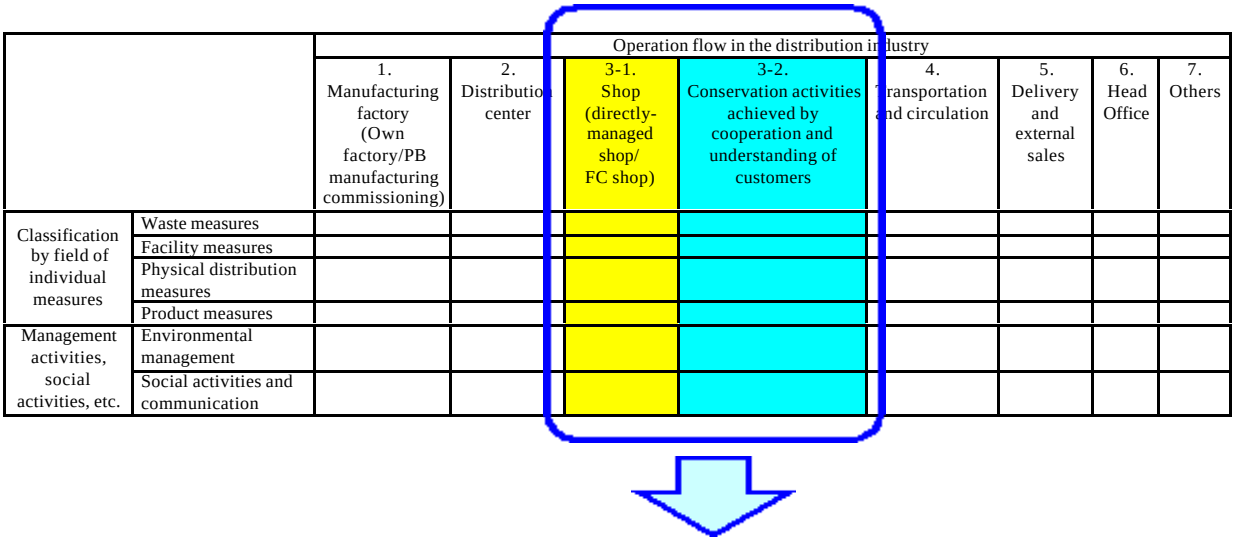
* Assumed purpose → Organize the cost and effects of a fixed period related to environmental conservation for each department and shop and implement more efficient environmental conservation measures in the future.

Items b, c, and d can be mainly used for organizing information for internal management.

When an administrator starts a new task, the aggregation of each department will be useful for providing a viewpoint for discovering the tasks such as for the administrator to discover the most efficient way of allocating the budget to each shop or for the manager of each shop to discover the effects achieved by the budget that was allocated. In addition, by taking up and indicating familiar tasks such as environmental conservation activities achieved in cooperation with customers, more understanding may be gained from shop attendants, promoting further environmental conservation activities.

Figure 6 Example of focusing on a specific department

(Example: Cost and effects associated with environmental conservation are organized for each shop)



		Operation flow in the distribution industry							
		1. Manufacturing factory (Own factory/PB manufacturing commissioning)	2. Distribution center	3-1. Shop (directly-managed shop/ FC shop)	3-2. Conservation activities achieved by cooperation and understanding of customers	4. Transportation and circulation	5. Delivery and external sales	6. Head Office	7. Others
Classification by field of individual measures	Waste measures								
	Facility measures								
	Physical distribution measures								
	Product measures								
Management activities, social activities, etc.	Environmental management								
	Social activities and communication								

(Example of organizing information on environmental conservation activities achieved by cooperation from customers)

	Amount used		c. Effects that can be measured		d. Cost that can be correlated to c.	Descriptive information, etc.	Evaluation and checking
	(Target)	(Result)	(Physical quantity units)	(Monetary units)			
Installation of energy conservation equipment (Shop A)							
Electricity [kWh/m²]							
Gas [m³/m²]							
Water [m³/m²]							

	Amount recovered		Recovered rate		c. Effects that can be measured		d. Cost that can be correlated to c.	Descriptive information, etc.	Evaluation and checking
	(Target)	(Result)	(Target)	(Result)	(Physical quantity units)	(Monetary units)			
Recycling recovered at the store (Shop A)									
Tray recycling									
PET bottle recycling									
Milk carton recycling									
Tin can recycling									

c. Re-organizing information focusing on a specific measure.

* Assumed purpose → Provide the information required for reviewing the waste disposal cost and recycling commissioning cost.

Organization of information focusing on individual measures will be effective for an administrator to decide the task to be focused on. For instance, by focusing on a waste measure that is attracting much attention in the distribution industry and analyzing the measure by focusing on the individual tasks can be one of the indicators of administrative judgment for future plan for the tasks.

The detail format varies according to the focus point. Selected information needs to be organized to help users to analyze the information.

Figure 7 Example of focusing on a specific measure

(Example: Organizing the information focusing on a waste measure)

		Operation flow in the distribution industry							
		1. Manufacturing factory (Own factory/PB manufacturing commissioning)	2. Distribution center	3-1. Shop (directly-managed shop/ FC shop)	3-2. Conservation activities achieved by cooperation and understanding of customers	4. Transportation and circulation	5. Delivery and external sales	6. Head Office	7. Others
Classification by field of individual measures	Waste measures								
	Facility measures								
	Physical distribution measures								
	Product measures								
Management activities, social activities, etc.	Environmental management								
	Social activities and communication								

Measure	Environmental conservation activity
Waste measure	Recycling recovered at the store

Depart name/ shop name	c. Effects that can be measured		d. Cost that can be correlated to c.	Descriptive information, etc.	Evaluation and checking
	(Physical quantity units)	(Monetary units)			
Distribution center					
Shop A					
Shop B					
Shop C					
Head Office					

* The above example is one of the format examples mainly for internal management. It is advisable to design other formats also, rather than being restricted to those indicated above.

d. Re-organize information focusing on a specific measure in a specific department.

* Assumed purpose → Measure the contents of the task related to a waste measure in the environmental conservation activity achieved by cooperation and understanding of customers.

In this section, capture the information from the viewpoints of b and c and analyze the cross section.

For instance, when the labor cost required for recycling activities at the shop is considerably high and the improvement measure is being examined, it may be important, in terms of internal management, to analyze what the differences are between the shop that is carrying out efficient recovery and the shop that is not.

Figure 8 Example of focusing on a specific measure

(Example: Waste processing measure that is achieved in cooperation and understanding with customers)

		Operation flow in the distribution industry							
		1. Manufacturing factory (Own factory/PB manufacturing commissioning)	2. Distribution center	3-1. Shop (directly-managed shop/ FC shop)	3-2. Conservation activities achieved by cooperation and understanding of customers	4. Transportation and circulation	5. Delivery and external sales	6. Head Office	7. Others
Classification by field of individual measures	Waste measures								
	Facility measures								
	Physical distribution measures								
	Product measures								
Management activities, social activities, etc.	Environmental management								
	Social activities and communication								

Environmental conservation activity	c. Effects that can be measured		d. Cost that can be correlated to c.	Descriptive information, etc.	Evaluation and checking
	(Physical quantity units)	(Monetary units)			
Recycling recovered at the store					
Bring Your Own Bag campaign					
Reduction of distribution of free plastic bags					
Handing disposal chopsticks on request					
Change of plastic shopping bags (materials)					

* The above example is one of the format examples mainly for internal management. It is advisable to design other formats also, rather than being restricted to those indicated above.

Summary

As described above, we have organized the concepts that may be useful for companies in the distribution industry to tackle environmental accounting as a "Guide to Introduction of Environmental Accounting."

The method and target for measuring (measuring) the effects and cost of environmental accounting may vary according to the purpose of introducing environmental accounting. However, the basic procedure, which is to collect and organize environmental accounting information after checking overview of the operation flow of the company and corresponding environmental conservation activities, can be used by any industry, as well as the distribution industry.

This Guide introduced actual environmental conservation activities and an example of the concepts of the effects and cost. Use the examples shown in this Guide to find out what information is requested by users and in what form the information is presented in each company. Accumulation of practical implementation in various forms will contribute to further development of environmental accounting, as well as tasks to environmental accounting in the distribution industry in the future.