

EcoAction 21 Guidelines 2009

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**Ministry of the Environment
(Government of Japan)**



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Foreword

- **Why environmental initiatives are important**

Our current socioeconomic system of mass production, mass consumption, and mass disposal affords us convenient and comfortable lifestyles. However, our way of living also puts enormous strain on the natural environment, putting our socioeconomic activities out of harmony with the natural world. If we do not make some changes, we may be threatening our very existence.

In 2007, the amount of carbon dioxide in the atmosphere was up about 37% from pre-industrial levels. This rate of increase is unprecedented in the last 20,000 years, and marks the highest concentration of atmospheric carbon dioxide in the past 420,000 years.

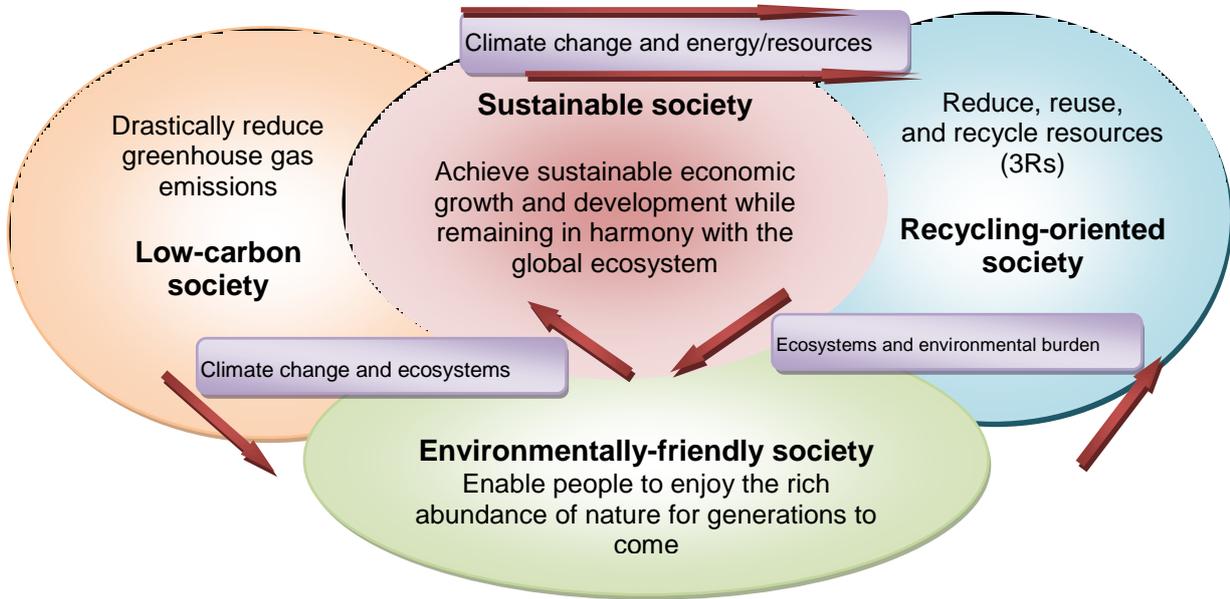
In order to maintain current lifestyles, the average person in Japan consumes around 34.1 kg of natural resources per day (approx. 12.5 tons annually) and generates around 12.5 kg (approx. 4.6 tons annually) of waste¹.

We must end this heavy consumption of energy and natural resources, heavy output of carbon dioxide, and wasting of natural resources that stems from our mass production, mass consumption, and mass disposal socioeconomic system and move towards an ecologically balanced, sustainable economy and society. Making this shift to a **sustainable society** requires a three-part strategy: (1) drastically cutting back on greenhouse gas emissions to create a **low-carbon society**; (2) *reducing* consumption and disposal of natural resources, *reusing*, and *recycling* to create a 3R-driven **recycling-oriented society**; and (3) creating an **environmentally-friendly society** where people can enjoy the rich abundance of nature for generations to come.

Independent, proactive environmental efforts on the part of businesses, consumers, and government agencies are of critical importance in building this sustainable society. Regardless of their size or field of operations, businesses in particular must actively undertake environmental initiatives, as it is these organizations that drive our socioeconomic activities.

¹ Per-person figures for natural resources and waste products calculated based on 2006 values. Natural resource and waste product values taken from the *Annual Report on the Environment, Sound Material-Cycle Society, and the Biodiversity in Japan 2009* white paper. Population figures taken from the *Vital Statistics* report (population estimates as of October 1, 2006).

Figure: Sustainable society initiatives (coordinated implementation)



Source: *Leading Environmental Nation Strategy in the 21st Century—Japan's Strategy for a Sustainable Society* (approved by the Cabinet June 1, 2007)

Introduction: The Revised EcoAction 21 Guidelines

1. History of the EcoAction 21 Guidelines

In 1996, the Ministry of the Environment formulated its Environmental Activity Evaluation Program. The purpose of the program was to provide a wide range of small- and medium-sized institutions with easy strategies for becoming aware of their relation to environment, establishing environmental targets, and taking environmental action on their own. The MOE has continued to revise and promote the program until the present day.

Society has undergone a variety of shifts since the initial Environmental Activity Evaluation Program was first formulated, including green purchasing, the greening of supply chains at major corporations, and the increasing publication of environmental reports. In response to these changes as well as requests from institutions working with the program, the MOE introduced core elements of the environmental management systems and environmental communication. The program was also thoroughly revised so that institutions could be actively evaluated (certified/registered) to see if they were properly following EcoAction 21 guidelines. The result of these efforts was the *Eco-Action 21 Environmental Management Systems—Environmental Activities Report Guidelines*, issued in 2004.

In October of the same year, the EcoAction 21 Central Secretariat was established at the Center for Sustainability at the Institute for Global Environmental Strategies, and the EcoAction 21 Certification and Registration Program was launched based on the established guidelines.

The number of certifications and registrations steadily increased at the rate of about 1,000 new institutions a year. By the end of October 2009, more than 4,000 institutions had qualified for EcoAction 21 certification and registration.

The current 2009 revision of the *EcoAction 21 Guidelines* was issued with the aim of further expanding environmental initiatives. It simplifies the guidelines and further promotes EcoAction 21 initiatives while addressing developments that have occurred since the formulation of the initial guidelines.

We hope that more institutions will participate in our efforts to establish a sustainable society by proactively and voluntarily implementing the EcoAction 21 program.

2. Role of EcoAction 21 in Environmental Policy

EcoAction 21 measures play a critical role among the Japanese government's range of plans to build a sustainable society.

- *Basic Environment Plan - The Way to a New Rich Lifestyle in a Sustainable Society* (approved by the Cabinet April 7, 2006)

Part 2 Specific implementation of environmental policies in the present quarter century

Chapter 1 Individual fields

Section 7 Building a system where values of the environment are actively evaluated in the market

Key Initiative: Set up a framework for environmentally conscious business practices

Promote use of environmental management systems among a wide range of institutions. Put particular emphasis on widespread adoption of the EcoAction 21 program aimed at small- and medium-sized institutions (in addition to ISO14001 standards and other environmental management systems) in order to promote environmentally conscious business practices among small- and medium-sized institutions, which lag behind in implementation of environmental management systems.

- Leading Environmental Nation Strategy in the 21st Century—Japan's strategy for a Sustainable Society (approved by the Cabinet June 1, 2007)

3. Eight Strategies to Be Implemented as Priorities in the Next One to Two Years

Strategy 8 Creating a System to Support a “Leading Environmental Nation”

Promote proper environmental management among institutions: *utilize the EcoAction 21 program among small- and medium-sized institutions while addressing the needs of individual industries.*

- Act Concerning the Promotion of Business Activities with Environmental Consideration by Specified Corporation, etc. by Facilitating Access to Environmental Information, and Other Measures (Environmental Consideration Promotion Law) (enacted April 1, 2005)

Article 11, Item 2 stipulates, *the State shall provide information on the method of publishing information on the state of environmental consideration and adopt other necessary measures to facilitate the release of the state of business-related environmentally considerate activities by small and medium-sized enterprises.* EcoAction 21 is one such measure.

- *Environmental Reporting Guidelines 2007* (Issued by MOE in June 2007)

Preface: Revision of the Environmental Reporting Guidelines

The Ministry of the Environment has separately issued Eco-Action 21, a publication aimed at enabling small- and medium-sized businesses to design and operate environmental management programs, to carry out conservation activities, and to publish “environmental activities reports” with relative ease. The resulting published materials would satisfy the requirements of “environmental activities reports” under that category stipulated by the Eco-Action 21, and qualify as a type of environmental reporting. Since fiscal year 2004, the Institute for Global Environmental Strategies (IGES) has conducted a certification and registration system, which publicizes the names of certified and registered organizations and their environmental activities reports.

- Evaluation System for Certifying Industrial Waste Management Contractors (launched in April 2005)

The Evaluation System for Certifying Industrial Waste Management Contractors aims to promote sound development of industrial waste management businesses and proper disposal treatment. Under the system, prefectural and designated municipal governments evaluate industrial waste management contractors to see whether they meet criteria set by the state. Their eligibility is then recorded on the license. The criteria cover three areas: compliance with laws, information disclosure, and environmental initiatives. The environmental initiatives area requires that contractors meet the standards given under ISO14001, EcoAction 21, or cross-certified environmental management systems. This certification program is outlined in Ministry of Environment Notification 131 (September 28, 2006): *Certification program established by the Minister of the Environment based on stipulations in Item 3, No. 3 of Article 9-2 and Item 3, No. 3 of Article 10-4 of the Waste Disposal and Public Cleansing Law.*

3. General Revision Policy

In creating the 2009 guidelines, revisions were carried out with two primary goals in mind: (1) making the guidelines *easier to understand* and (2) improving the *quality* of the environmental management systems that institutions use to carry out their environmental initiatives. The following three points were emphasized:

- Making the guidelines easier for small- and medium-sized institutions to understand (improved overall structure, use of terms and expressions, etc.)
- Working towards a sustainable society by reviewing/adding requirements for environmental management systems, environmental activity reports, and the like, thereby enhancing the positive effects of EcoAction 21 and the environmental management activities undertaken by institutions
- Clarifying the role of the EcoAction 21 Certification and Registration Program in evaluating institutions' independent and proactive implementation of EcoAction 21 initiatives

4. Key Revisions

(1) Titles

The 2004 *Eco-Action 21 Environmental Management Systems—Environmental Activities Report Guidelines* consisted of four parts. Actual guidelines were provided in two of the sections: *Environmental Management System Guidelines* and *Environmental Activity Report Guidelines*. However, because EcoAction 21 initiatives were covered throughout the four sections, it was not sufficient for institutions to simply meet the requirements of the two “guidelines” sections. In the 2009 version, the title has been changed to “EcoAction 21 Guidelines” and word “guidelines” taken out of the section titles. As a result, the entire publication is now clearly identified as a set of guidelines that should be followed.

Main title

2004 Version	2009 Version
<i>Eco-Action 21 Environmental Management Systems—Environmental Activities Report Guidelines (Fiscal Year 2004 Version)</i>	<i>EcoAction 21 Guidelines 2009</i>

Section titles

2004 Version	2009 Version
Guide to Self-Check of Environmental Burden	Self-checking Environmental Burden
Guide to Self-Check of Environmental Measures	Self-checking Environmental Initiatives
Environmental Management Systems Guidelines	Environmental Management Systems
Environmental Activity Report Guidelines	Environmental Activity Reports

(2) Overall organization

Many institutions participating in EcoAction 21 aim to receive certification and registration. The 2009 version therefore includes a new chapter on certification and registration. The overall organization of the guidelines has also been modified to make it easier to understand.

(3) Environmental management system requirements

- (i) “Clearly identify organizations and activities targeted by environmental initiatives” has been added as an essential provision for environmental management systems, increasing the total number of provisions from 12 to 13.
- (ii) “Amount of chemical substances used (for businesses that handle chemicals)” was added as an environmental burden that institutions must identify
- (iii) Three items were added to the list of required environmental objectives: “reduce the use of chemical substances (for businesses that handle chemicals)”, “carry out green purchasing”, and “voluntarily produce, sell, and provide environmentally-conscious products and services”.
- (iv) Some of the recommended items have now become required for larger organizations. These are listed in a new column entitled “required items for larger organizations”.

(4) Environmental activity report requirements

The minimum number of topics that must be included in environmental activity reports has been increased from five to nine items. The following five points have been added to the items outlined in the new version: organizational profile, scope of activities, environmental initiatives planned for the upcoming fiscal year, status of compliance with environmental regulations and evaluation results, results of overall evaluation and review by the company representative (top executive).

(5) Self-checking environmental burden and the Environmental Burden Checklist

The 2004 EcoAction 21 Guidelines were written based on the *Environmental Report Guidelines 2003* and the *Environmental Performance Indicator Guideline for Organizations 2002*. Items on the 2009 Environmental Burden Checklist have been reviewed in light of the new *Environmental Report Guidelines 2007* (incorporating requirements from the *Environmental Report Guidelines 2003* and the *Environmental Performance Indicator Guideline for Organizations 2002*) and updated to make them easier for small- and medium-sized institutions to understand.

(6) Self-checking environmental initiatives and the Environmental Initiatives Checklist

In light of the industry-specific guidelines pursuant to the 2004 EcoAction 21 guidelines, content has been simplified by removing those initiatives that clearly only apply to particular industries.

Chapter 1: Overview

1. What is EcoAction 21?

Building a sustainable society requires that environmental initiatives be actively carried out by a full spectrum of socioeconomic actors. For their part, institutions must take an environmentally conscious approach to all of their products, services, and business activities—striving for energy efficiency, conservation of natural resources, waste reduction, and the like.

The EcoAction 21 guidelines were created to support all institutions—whether corporations, schools, or public agencies—in carrying out environmental initiatives efficiently and effectively. They provide methods for setting up, operating, and maintaining environmental management systems to set environmental targets, carry out initiatives, and evaluate the results. They also offer methods for communicating with society about environmental issues.

EcoAction 21 also features a “certification and registration program” to certify and register those institutions that are properly carrying out environmental initiatives; setting up, operating, maintaining systems for environmental management; and carrying out environmental communication.

The overall aim of the EcoAction 21 guidelines and certification/registration program is to encourage institutions to carry out environmental initiatives, thereby contributing to the achievement of a sustainable economy and society.

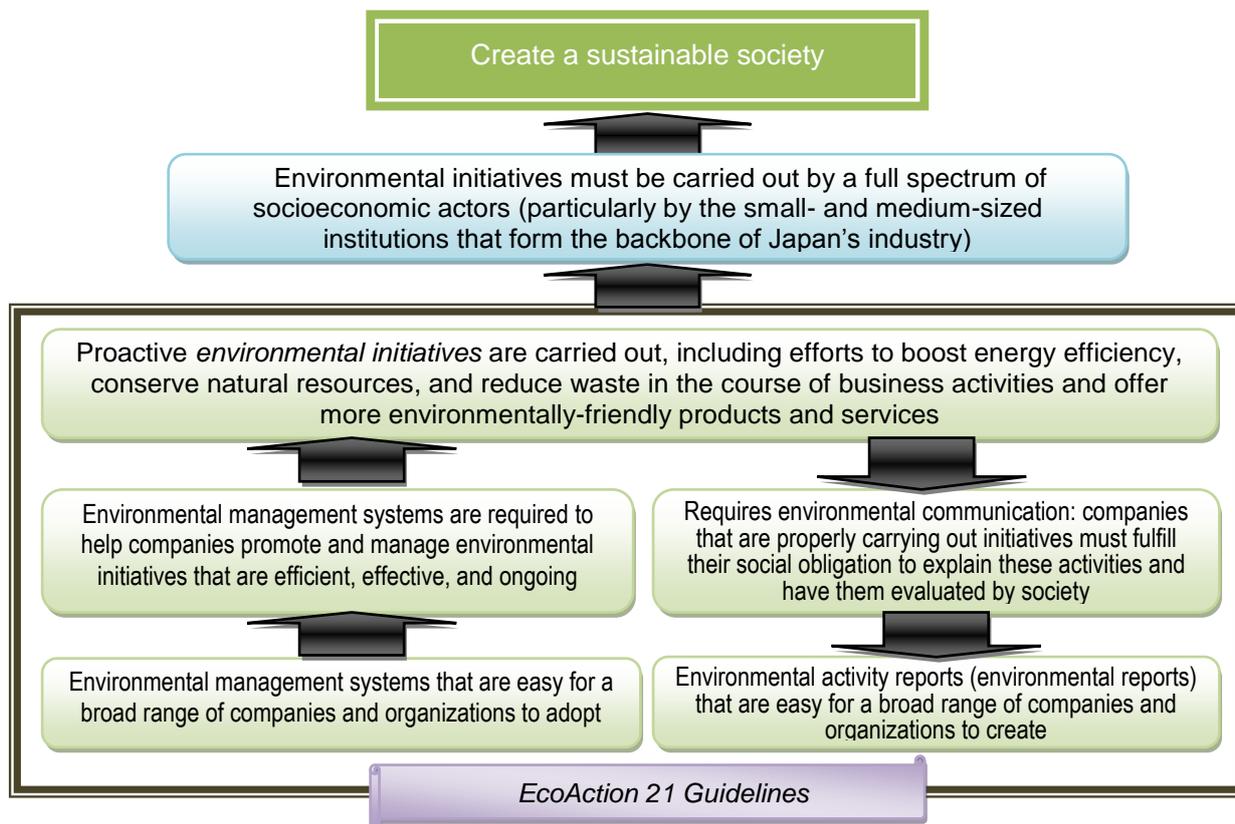


Figure: Purpose and overview of EcoAction 21

- **What are environmental management systems?**

In order for institutions to voluntarily carry out environmental initiatives in the course of their operations, they must establish their own environmental policies and targets, carry out initiatives to achieve them, examine and evaluate the results, and then make any necessary improvements. This process is called “environmental management”. An environmental management system, or EMS, establishes a framework consisting of protocols and procedures to carry out environmental management at plants and offices.

Environmental management systems work to reduce environmental burdens (amount of energy or resources consumed, amount of waste generated, etc.) arising in the course of business activities. In addition, they demand that institutions implement environmental initiatives (such as offering environmentally friendly products and services) according to the following steps:

- (1) Voluntarily establish environmental initiative policies and targets (**P: Plan**)
- (2) Set up an organizational framework to achieve those targets and carry out the necessary measures (**D: Do**)
- (3) Examine and evaluate system operation and target achievement (**C: Check**)
- (4) Make improvements and review the system regularly (**A: Action**)

These activities, based on the steps of the **PDCA cycle**, allow institutions to carry out **continuous improvement** of their environmental management systems and environmental initiatives.

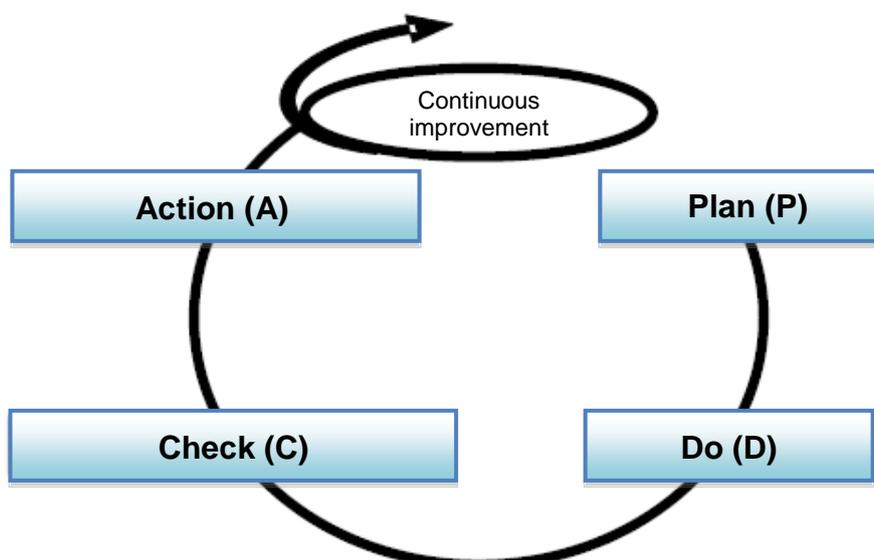


Figure: The PDCA cycle

- **What are the benefits?**

Institutions often struggle with the following issues when trying to carry out environmental initiatives at their plants or offices:

- Even if good rules are put in place, they are ad hoc rules and eventually ignored
- Even if overburden and wastefulness in business activities are identified, nothing can be done to reduce them
- Even if targets are set, it is difficult to really achieve them
- Specific jobs are handled only by certain individuals, and if they take time away from those jobs, the work won't get done

In all of the above cases, these guidelines can help institutions carry out environmental initiatives. Adopting an environmental management system based on the PDCA cycle helps institutions tackle a variety of issues at their plants and offices. For example, a good EMS allows institutions to:

- Have all employees—not just a single person or specific persons—carry out initiatives
- Make sure that set rules (standards) are followed all the time, not just when and where it is convenient
- Clarify initiative targets
- Accurately evaluate initiatives

- Clearly identify causes when targets are not met
- Continue improving year after year through the cumulative effect of daily actions

In addition, institutions that use an environmental management system to carry out their environmental initiatives can expect to receive the following benefits:

- Lower operating costs (through conservation of resources, greater energy efficiency, and reduced waste)
- Prevention of environmental hazards such as contamination or accidents
- Compliance with environmental laws

Of course, the greatest benefit is protecting our global and local environment so that we can pass on the beauty of the natural world to the next generation.

2. Special Features

EcoAction 21 has the following special features:

- **Outlines environmental management systems that can be easily adopted by small- and medium-sized institutions**

In addition to encouraging institutions to carry out environmental initiatives, EcoAction 21 is designed to help them do so more efficiently and effectively. It does this in light of the ISO14001 standards issued by the International Organization for Standardization to outline environmental management systems that are easy to adopt, even for small- and medium-sized institutions.

Setting up, operating, and maintaining this kind of environmental management system not only supports environmental initiatives, but results in several management benefits—including lower operating costs, improved productivity, and higher yields.

Defining setup, operation, and maintenance

Setting up an environmental management system means creating the framework itself. Operating it means actually carrying out measures based on the framework. Maintaining the system means keeping it in good working order by making continuous improvements.

- **Specifies required environmental initiatives**

Setting up, operating, and maintaining an environmental management system in itself does not mean that an institution is sufficiently carrying out environmental initiatives. EcoAction 21 also specifies a list of environmental burdens that institutions must identify, including the amount of carbon dioxide and waste generated, total water drainage, and chemical substances used.

The guidelines also specify activities that must be included the environmental initiatives that institutions carry out. These include measures for boosting energy efficiency, reducing waste and recycling, conserving water, reducing the use of chemical substances (for businesses that handle chemicals), carrying out green purchasing, and for producing, selling, and offering more environmentally friendly products and services.

These are the environmental initiatives that institutions are required to carry out in the course of their environmental management activities.

- **Addresses environmental communication**

Institutions report the status of their environmental activities using environmental communication. Environmental communication is a social demand and performs the critical function of promoting one's own environmental initiatives and building trust in the community.

EcoAction 21 guidelines require that institutions create and publish **environmental activity reports**. Demonstrating sincere effort in the area of environmental communication not only builds community trust in an organization but is also an important way for companies to grow and develop.

- **Conducts third-party evaluations of institutions' independent, proactive initiatives**

The EcoAction 21 Certification and Registration Program offers consistent third-party evaluation of institutions that are voluntarily and proactively carrying out EcoAction 21 initiatives, meeting the environmental management system and environmental activity report requirements specified in the guidelines (hereafter referred to as the "guideline requirements"). In order to receive certification and registration under the program, institutions must be enacting EcoAction 21 initiatives throughout their entire organization and in all of their operations (all business activities, products, and services).

3. Structure

The *EcoAction 21 Guidelines 2009* consist of four sections.

Chapter 3, *Environmental Management Systems*, gives the requirements for setting up, operating, and maintaining environmental management systems. Once institutions carry out initiatives using these systems, they can turn to Chapter 4, *Environmental Activity Reports*, to learn the requirements for creating and publishing environmental reports containing the results of those initiatives. Chapter 5, *Self-checking Environmental Burden*, supports institutions in preparing these reports by helping them identify the environmental burden of their business activities. They can then refer to Chapter 6, *Self-checking Environmental Initiatives*, to learn how to evaluate the status of their environmental initiatives and design measures to reduce environmental burden.

Chapter 3 Environmental Management Systems

In addition to encouraging institutions to carry out environmental initiatives, EcoAction 21 is designed to help them do so more efficiently and effectively by outlining environmental management systems that are easy to adopt, even for small- and medium-sized institutions. There are a total of thirteen requirements for setting up environmental management systems.

Chapter 4 Environmental Activity Reports

Once institutions have obtained environmental initiative results that meet the environmental management system requirements, EcoAction 21 indicates how to consolidate and report the results using an environmental activity report. Consolidating and reporting the results of environmental initiatives is the first step in environmental communication.

Chapter 5 Self-checking Environmental Burden

This chapter shows institutions how to easily identify the environmental burden of their business activities. Before institutions can set up an environmental management system and properly carry out environmental initiatives, they must first collect accurate information on the environmental burdens they are causing to determine what they are and in what amounts.

Chapter 6 Self-checking Environmental Initiatives

This chapter provides a checklist of specific environmental initiatives that institutions are expected to carry out. Institutions can use the self-check to identify the status of their environmental initiatives and clarify specific steps they need to take in the future. It is important that institutions, particularly those implementing EcoAction 21 for the first time, conduct an initial review to identify environmental burdens and assess the current status of their environmental initiatives.

4. Procedural Flow

The typical procedure institutions follow when implementing EcoAction 21 is outlined below. In some cases, the actual sequence will differ from the thirteen requirements listed in Chapter 3, *Environmental Management Systems*. This is particularly true for institutions implementing EcoAction 21 for the first time, as they will first have to decide on an implementation structure and then carry out an initial review to assess their current status in terms of environmental issues. Procedures will vary from the second year onward.

If an institution has never implemented EcoAction 21 before, the first step is for a company representative to decide that the company will enact the initiatives throughout its entire organization and clarify the scope of activities and organizations that will be affected. The leadership of this representative person is the most important factor in successfully implementing EcoAction 21.

The next step is to decide on an implementation structure for enacting EcoAction 21.

In doing so, an initial review should be carried out to assess the company's current status in terms of environmental issues. This review should be based on the information covered in Chapter 5, *Self-checking Environmental Burden*, and Chapter 6, *Self-Checking Environmental Initiatives*, and should identify the environmental burdens generated by the company's business activities, the status of current environmental initiatives, and any environmental laws or regulations that apply to the organization. An environmental management system should then be set up according to the requirements outlined in Chapter 3, *Environmental Management Systems*.

The environmental management system should be set up according to the four steps of the PDCA cycle: Plan (formulate a plan), Do (implement the plan), Check (review and evaluate the status of initiatives), and Action (evaluate and revise the entire process). The results of this process should be documented and published in an environmental activity report. **Continuous improvement** is then carried out by repeating the cycle again and again.

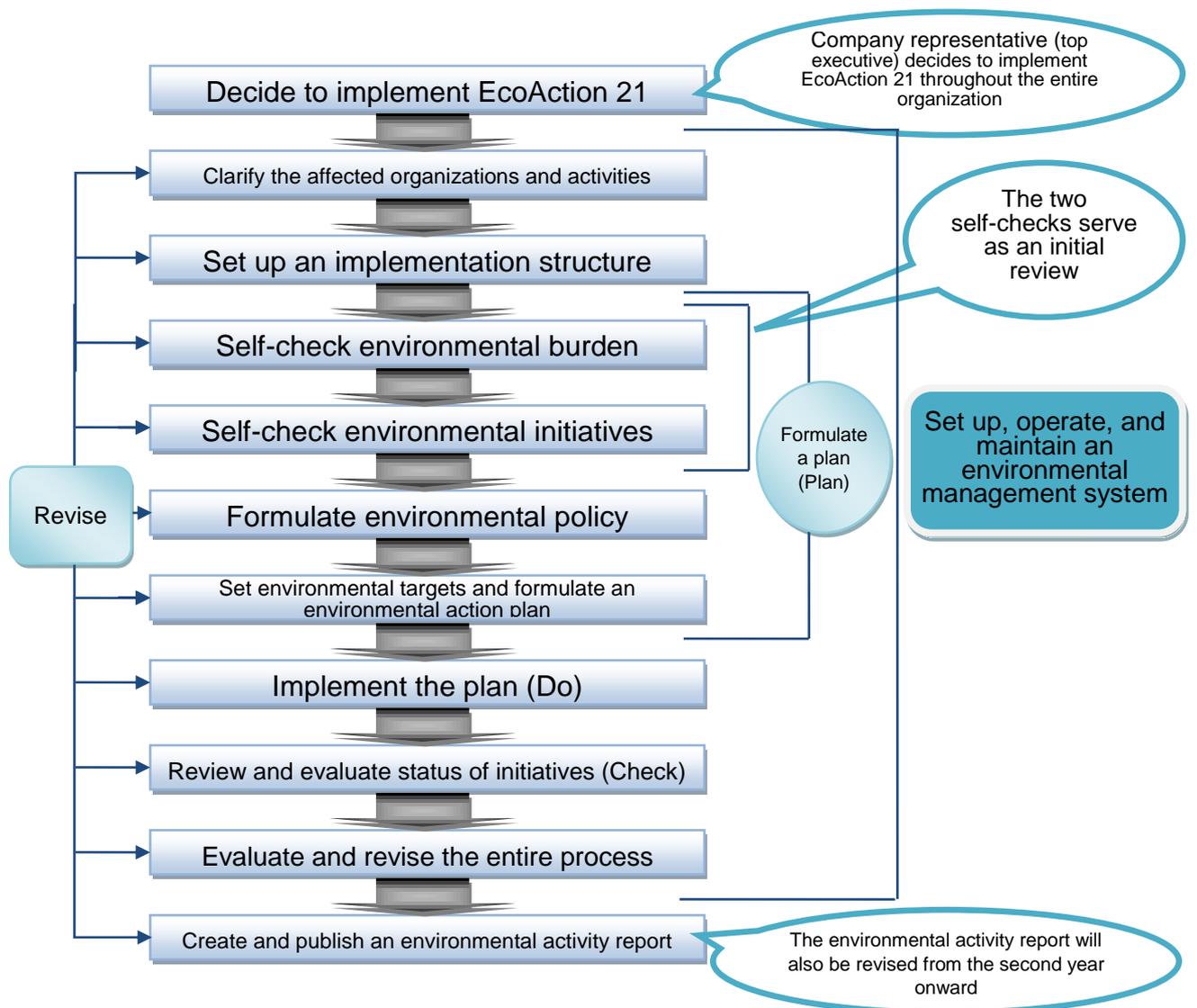


Figure: EcoAction 21 procedural flow

Chapter 2: EcoAction 21 Certification and Registration Program

1. Purpose

In order to promote the implementation of EcoAction 21 among institutions and to ensure that the quality of their efforts will continue to improve, it is essential to set up a framework to provide necessary instructions and advice based on the suitable evaluation of institutions' environmental initiatives. Furthermore, the framework should provide institutions with an opportunity to achieve social evaluation and community trust through third-party accreditation, which will signal that institutions carrying out good environmental initiatives are doing so in accordance with EcoAction 21 guidelines.

The EcoAction 21 Certification and Registration Program was launched in October 2004. The program sends EcoAction 21 auditors, who are certified under EcoAction 21 guidelines issued by the Ministry of Environment, to review institutions and see whether they are carrying out environmental initiatives in line with EcoAction 21 guidelines. Those found to be in compliance are then certified and registered. The program also publishes environmental activity reports from certified/registered institutions and offers guidance during the auditing process when needed.

2. Program Operation

The following gives an overview of how the EcoAction 21 Certification and Registration Program is run.

- Operated by: Eco Action 21 Central Secretariat

The Central Secretariat performs the following tasks:

- Testing, certification, and registration of EcoAction 21 auditors to review institutions
- EcoAction 21 auditor training
- Accreditation of regional secretariats to oversee regional EcoAction 21 Certification and Registration Programs
- Final decisions on whether institutions pass or fail certification/registration
- Institution certification and registration

- Publication of environmental activity reports from certified/registered institutions
- Establishing procedures for ensuring that audits comply with guidelines and for making decisions on certification and registration eligibility
- Establishing and publishing industry-specific guidelines (when needed)
- Promoting widespread implementation of EcoAction 21

EcoAction 21 auditors perform the following tasks:

- Reviewing institution compliance with EcoAction 21 guidelines
- Offering instructions and advice regarding environmental initiatives

EcoAction 21 regional secretariats perform the following tasks:

- Accepting audit applications from institutions
- Appointing auditors
- Decisions on whether institutions pass or fail certification/registration
- EcoAction 21 auditor training
- Promoting local implementation of Eco Action 21

The EcoAction 21 Central Secretariat website provides a list of auditors and regional secretariats.

3. Benefits

If an institution is recognized as complying with EcoAction 21 guidelines, the Central Secretariat issues the institution an EcoAction 21 Certification and Registration. The secretariat then adds the organization to their online list of certified and registered institutions and publishes its environmental activity report.

Certified and registered institutions are able to add the EcoAction 21 logo to their corporate brochures and business cards. They also enjoy the following benefits:

- Yearly audits that support continuous improvement of their environmental management systems (auditors can provide them with instructions and advice during the reviews)
- Ability to work on greening supply chains
- Greater trust from stakeholders and improved corporate image and brand strength through the creation and publication of environmental activity reports
- Possibility of low-interest loans from financial institutions and/or meeting the requirements for bidding on public works projects

4. Basic Requirements

In order to receive EcoAction 21 certification and registration, institutions must properly implement environmental initiatives according to the following criteria, which are based on the requirements stipulated in the EcoAction 21 guidelines. The institution must then undergo the designated review by an auditor and have the results submitted to a review board for consideration. If all of these requirements are met, the institution will be certified and registered under the program.

- (1) Proper setup of an environmental management system in line with guideline requirements. The system should be in the form of a PDCA cycle and include the following elements: Plan (formulating a plan), Do (implementing the plan), Check (reviewing and evaluating the status of initiatives), and Action (evaluating and revising the entire process).
- (2) Proper operation and maintenance of the environmental management system set up in line with guideline requirements (institutions applying for certification and registration for the first time must operate their environmental management system for at least three months before undergoing a review)
- (3) Identification of environmental burdens (e.g., carbon dioxide emissions, waste generated, total water drainage) and proper implementation of required environmental initiatives (e.g., reducing carbon dioxide and waste output, cutting back on the use of water and chemical substances, carrying out green purchasing, voluntarily producing, selling, and offering more environmentally friendly products and services) in line with guideline requirements.
- (4) Evaluation and review of the entire organization carried out by a company representative (top executive) in line with guideline requirements.
- (5) Regular creation and publication of environmental activity reports in line with guideline requirements.
- (6) Consistency among business activities (sector, category, size); areas and organizations covered by certification/registration; self-checked environmental burdens and initiatives; areas addressed by environmental policies, targets, and activity plans; and topics covered in environmental activity reports. EcoAction 21 initiatives are applied to all activities throughout the organization, with this fact clearly stated or explicit plans for steadily expanding the scope of their application in place.

5. Industry-specific Guidelines and Auditing Procedures

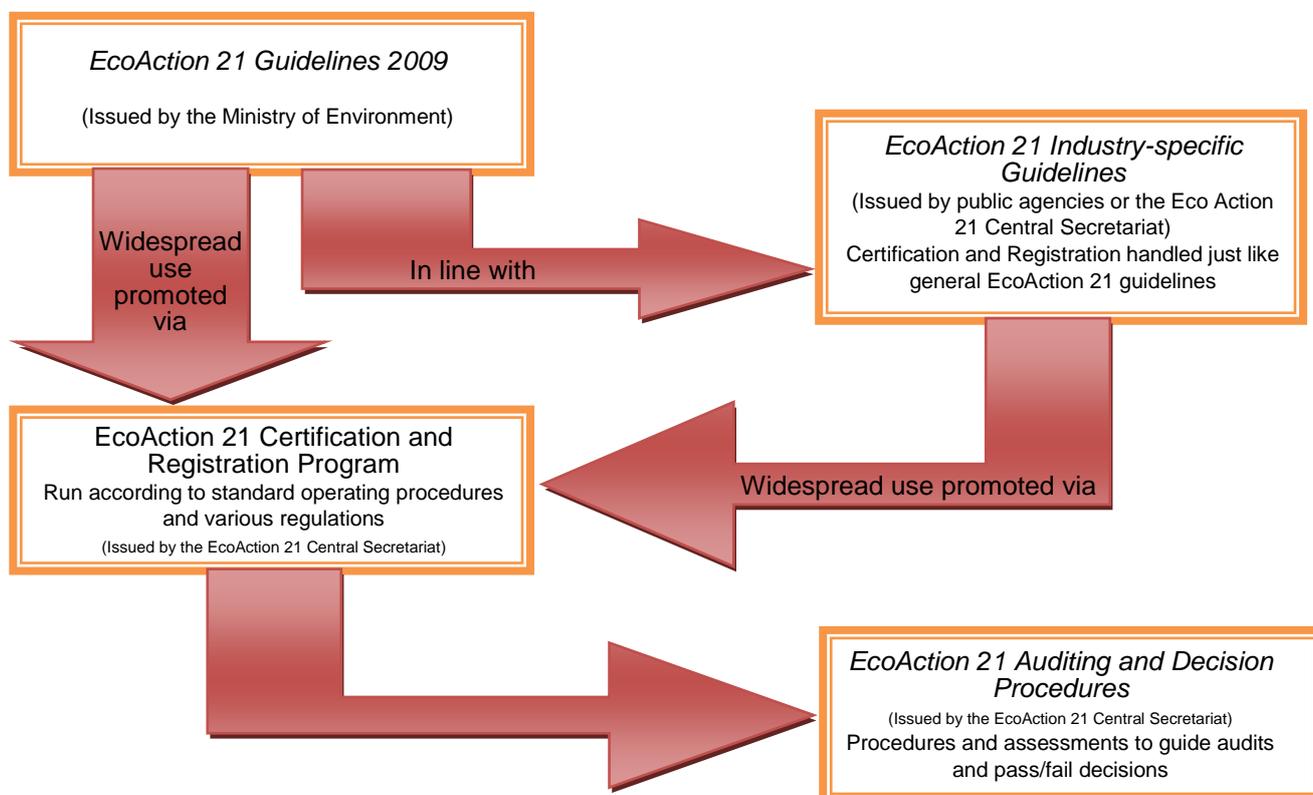
In addition to the guidelines presented here, the EcoAction 21 Certification and Registration Program also has guidelines aimed at specific industries (industry specific guidelines), which are issued by public agencies or the Central Office. The industry-specific guidelines are pursuant to these EcoAction 21 guidelines.

Institutions whose operations fall in a sector for which there are industry-specific guidelines must implement EcoAction 21 in accordance with the specific guidelines for that sector.

In addition to setting forth standard operating procedures and various regulations, the Central Office has also issued the *Auditing and Decision Procedures* guide, which outlines procedures and assessments for auditors conducting reviews and for regional secretariats rendering pass/fail decisions. These steps were taken in order to increase the reliability of the EcoAction 21 Certification and Registration Program and ensure that it is run according to a just and fair process.

The industry-specific guidelines, standard operating procedures, various regulations, and auditing and decision procedures are all available on the EcoAction 21 Central Secretariat website.

Figure: EcoAction 21 guidelines and industry-specific guidelines



6. Certification and Registration Procedure

Institutions that wish to undergo a registration audit should first make sure that they meet all of the basic requirements listed above in Section 4, *Basic Requirements*. Note that before undergoing an audit, institutions must have been operating their environmental management system for at least three months and meet all applicable environmental regulations.

Certification and registration procedure

1. Institutions that wish to be certified and registered must submit an audit application form and environmental activity report to the nearest EcoAction 21 regional secretariat to apply for an audit (the audit application form can be downloaded from the EcoAction 21 Central Secretariat website).
2. The regional secretariat appoints an auditor to head the review and notifies the institution.
3. The auditor collects the necessary documents from the regional secretariat and the institution under review.
4. The auditor conducts a registration audit (document and on-site review).
5. The auditor puts together a report on the results of the audit and submits it to the regional secretariat.
6. The review board at the branch office reviews the auditor's report and decides whether the institution is eligible for certification and registration. This decision is reported to the Central Secretariat.
7. The Central Secretariat reviews the report submitted by the branch office review board and decides whether to approve the institution for certification and registration (cases are discussed by the Central Secretariat review board as needed). This decision is reported to the institution undergoing review.
8. The institution under review submits their certification and registration fee to the Central Secretariat.
9. The Central Secretariat signs a certification and registration contract with the institution under review.
10. The Central Secretariat sends the institution their certificate and registration documents. The institution may now use the EcoAction 21 logo and have their environmental activity report published on the Eco Action 21 Central Secretariat website.
11. Certification and registration must be renewed every two years. Certified and registered institutions must also undergo a mid-term review one year after their registration and a renewal review the

following year. If they are found to be in compliance with all relevant guidelines, registration is renewed using the same procedures described above.

Institutions seeking certification and registration must follow all EcoAction 21 certification and registration procedural rules.

Standard operating procedures, certification and registration procedural rules, application forms, and other resources can be found on the EcoAction 21 Central Secretariat website: <http://www.ea21.jp/>.

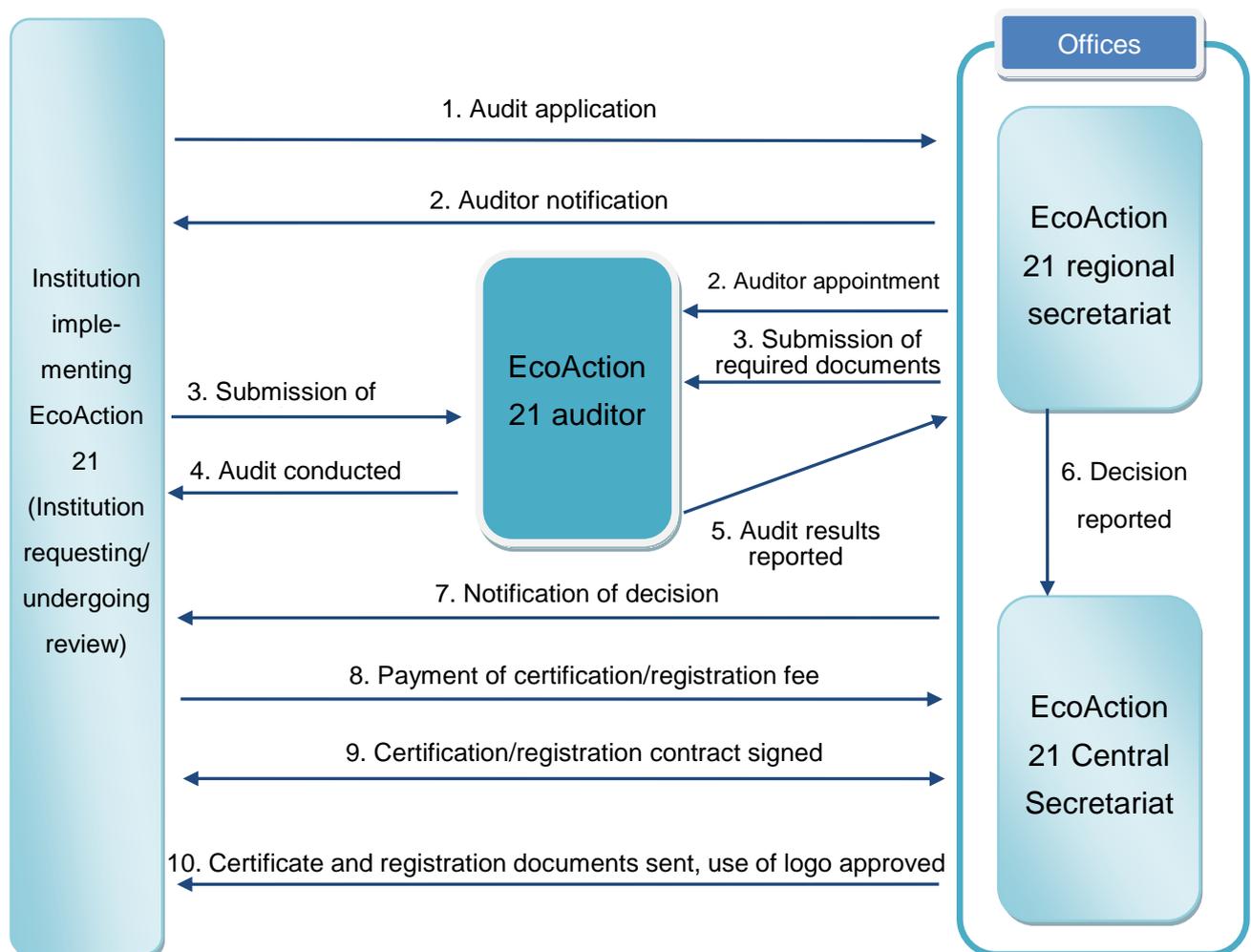


Figure: EcoAction 21 certification and registration procedures

Chapter 3: Environmental Management Systems

This chapter sets forth the EcoAction 21 requirements for environmental management systems.

Institutions that wish to implement EcoAction 21 and receive certification and registration must set up, operate, and maintain an environmental management system in line with the following requirements.

Point #1: Environmental management systems set up to incorporate the 13 key items

Environmental management systems are set up to incorporate 13 key items, and are based on the PDCA cycle: Plan (formulate a plan), Do (implement the plan), Check (review and evaluate the status of initiatives), and Action (evaluate and revise the entire process).

Repeating the steps of the PDCA cycle allows institutions to keep improving their environmental management systems and boost the effectiveness of their environmental initiatives. The cumulative effect of this process aims for continuous improvement of environmental initiatives and the environmental management system.

Point #2: Requirements stipulated for each of the 13 key items

The specific requirements for environmental management systems are the “Do X” or “Implement X” instructions given in the heavily outlined box under each key item. Institutions that wish to receive certification and registration must set up, operate, and manage their environmental management system so that it meets all of the requirements given in these boxes.

- The instructions listed are the “have to” items. Their implementation is required for certification and registration.
- Institutions operating in an industry for which there are industry-specific guidelines must set up, operate, and maintain their environmental management systems in line with these guidelines.

Point #3: Requirements explained for each of the 13 key items

Explanations are provided for each key item requirement so that institutions know exactly what actions they must take. It is important that institutions fully understand these explanations before setting up, operating, and maintaining their environmental management systems.

Point #4: Recommendations also provided to promote more proactive initiatives

Recommendations are not requirements, but it is hoped that institutions will implement them if the sector, category, and size of their business allows. Note that there are certain recommendations that are required for larger organizations*. These are listed in boxes entitled “Recommendations for larger organizations”. Also note that in order to ensure more effective operation and maintenance of environmental management systems, organizations that have been implementing EcoAction 21 for several years will be asked to implement some recommendations as requirements during their audits. Other organizations are expected to carry out recommendations to demonstrate that they are taking a proactive role in implementing environmental initiatives.

*“Larger organizations” are generally considered those with 100 employees or more.

- **Environmental management system requirements and actual implementation**

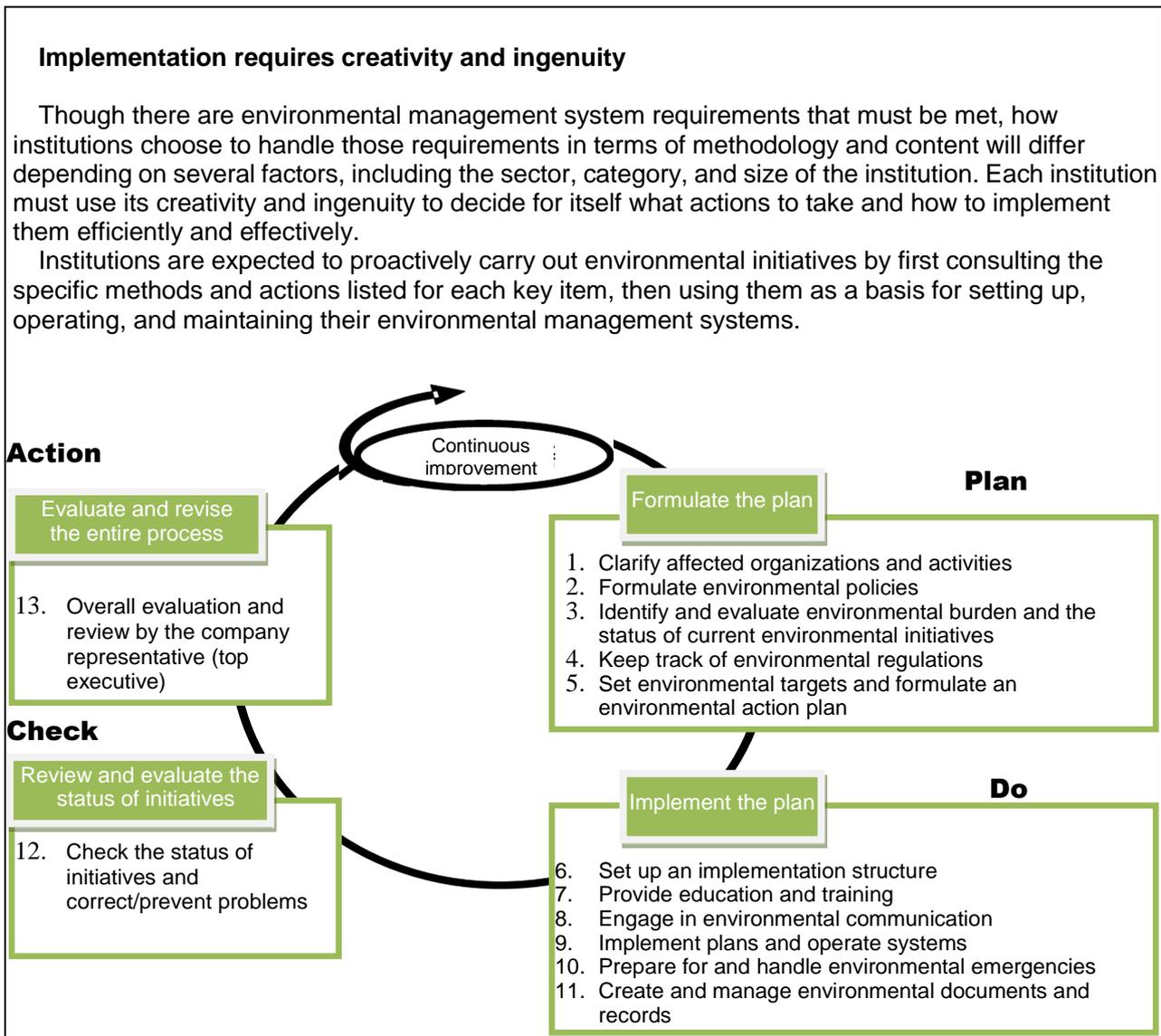


Figure: Environmental management systems and the PDCA cycle

I. Plan (Formulating a Plan)

The first step is *I. Plan (Formulating a Plan)*. In this step, institutions will create a specific plan that outlines how they will reduce environmental burden and promote environmental initiatives. If a plan is not correctly formulated, it will be impossible to properly evaluate and revise the results of initiatives once they are carried out. Institutions must begin by clarifying affected organizations and activities, self-checking current environmental burden and the status of environmental initiatives through an initial review, then setting appropriate environmental targets and formulating an environmental action plan based on the results of the review.

1. Clarify Affected Organizations and Activities

Institutions must enact EcoAction 21 initiatives throughout their entire organization and in all of their operations (all business activities, products, and services), and set up, operate, and maintain an environmental management system. Organizations and activities subject to EcoAction 21 certification and registration must be clarified.

Explanation:

When considering how to address environmental issues, it is rarely effective for an institution to only carry out environmental initiatives for certain business activities or in certain parts of its organization. That is why institutions must make the decision to target their entire organization, all business activities, and all employees* when implementing EcoAction 21.

However, larger institutions with multiple offices or plants may begin by targeting sites (offices or plants) generating the most environmental burden, and then expand these initiatives in stages to include more and more of their organization. Still, even in these cases, environmental initiatives must target all business activities in the designated portion of the organization, and there must be a clear expansion plan in place and definite schedule for eventually including the entire organization. The details of these plans must also be outlined in the institution's environmental activity report.

Institutions carrying out initiatives in stages must include the primary business activities of the selected portion of their organization as a target of those initiatives. Institutions may not simply target organizations

or sites with comparatively little environmental burden, while leaving areas of more severe environmental burden outside of their target operations**.

* “All employees” refers to every person working in the targeted organization, including those with temporary contracts, part-time workers, and commissioned employees regularly stationed at the worksite.

** “Target operations” collectively refers to both the organizations and business activities targeted by EcoAction 21 initiatives.

If portions of an organization have already received ISO14001 or some other environmental management system certification, institutions should work to expand the areas covered under these programs so that the scope of “target operations” includes the entire organization.

2. Formulate Environmental Policy

A company representative (top executive) must set forth and commit to implementing an environmental management policy (environmental policy). This policy must:

- **Be well-suited to the organization’s business activities**
- **Specify the basic approach to environmental initiatives**
- **Guarantee compliance with all applicable environmental regulations**

The environmental policy must bear the date of enactment (or revision) and the signature of the company representative. It must then be distributed and explained to all employees at the institution.

Explanation:

An institution’s environmental policy serves as a social commitment (contract) indicating that an organization is voluntarily and proactively implementing environmental management and continually working to reduce its environmental burden. It also sets forth the basic approach an institution is taking towards its environmental initiatives.

An environmental policy that is **well-suited to an organization’s business activities** and **specifies the basic approach to environmental initiatives** outlines the overall approach an organization is taking to its environmental activities. It indicates basic policies towards its own business activities (particularly those in its primary line of business) and priority areas to be addressed.

An institution’s business activities include any manufacturing, sales, transport, or other activities carried out by its offices, shops, or plants. They also include any products or services that the institution offers.

Environmental initiatives include efforts to reduce the environmental burden generated by those activities, taking a more active role in environmental conservation or creation, and efforts that help build a sustainable society (initiatives to benefit the environment).

An environmental policy does not need to specify quantitative targets, but it must clearly identify the institution’s basic approach to environmental initiatives. For example, initiatives well-suited to the business activities of a manufacturer might include reducing the amount of a certain waste material generated during the manufacturing process, cutting back on the amount of electricity used during manufacturing, or finding more fuel-efficient ways to transport products, parts, or raw materials. In addition to carrying out initiatives like these at their plants and offices, manufacturers might aim for more environmentally-conscious production or materials procurement—which could include designing products that make use of recycled materials, are easier to recycle, or have higher energy efficiency. Businesses working in distribution and sales might work to reduce energy consumption at shops or other outlets; eliminate, simplify, or use environmentally-friendly packaging for their merchandise; reduce fuel consumption by designing more efficient transport routes; make an effort to sell environmentally-friendly products (e.g., Eco Mark products), or actively provide environmental information to their customers.

When formulating an environmental policy, company representatives should write them in their own words, considering their personal approach to environmental issues and highlighting the unique features of their organization.

When distributing and explaining the environmental policy to employees, institutions should make sure that they explain it in concrete terms so that all employees will be able to participate in carrying out the initiatives. This can be done during meetings or morning assembly, or by posting notices around the workplace.

- Business activities and environmental initiatives

Activity/ Environmental considerations	Environmental initiatives	
	Initiatives to reduce environmental burden	Initiatives to benefit the environment
Environmentally-friendly business activities at plants, stores, or offices	<i>Examples:</i> Reducing the amount of CO ₂ emitted, energy consumed, water used, or waste generated during manufacturing or at stores; reducing the amount of fuel used in transport	<i>Examples:</i> Using alternative energy sources such as solar power, planting green rooftops, increasing the amount of on-site vegetation, participating in local environmental activities, carrying out green purchasing
Offering environmentally-friendly	<i>Examples:</i>	<i>Examples:</i>

products or services	Using energy- or resource-efficient parts to manufacture products, using recycled materials in production, reducing the chemical content in products, simplifying sales packaging	Designing energy- or resource-efficient products, designing products that are easier to recycle, selling environmentally-friendly products, distributing environmental information
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3. Identifying and Evaluating Environmental Burden and the Status of Environmental Initiatives

Institutions must identify the environmental burden of the business activities that fall under the scope of their target operations using the environmental burden self-check procedure. The results of this self-check are then used to specify which business activities are most damaging to the environment and why. The following environmental burdens must be identified: carbon dioxide output, amount of waste generated, total water drainage (or water used), and the amount of chemical substances used (for businesses that handle chemicals). The status of current environmental initiatives is identified using the environmental initiative self-check procedure.

Explanation:

Identifying environmental burden

Before implementing environmental initiatives, it is critical that institutions identify the degree of environmental burden caused by their business activities. This includes knowing the amount of resources and energy consumed by the institution and how much carbon dioxide and waste is being produced.

Institutions should use the environmental burden self-check procedure outlined in Chapter 5 along with the Environmental Burden Checklist (Attachment 1) to identify the environmental burden of their business activities. The results of the self-check should then be used to identify which of the institution’s activities, facilities, equipment, and substances are most damaging to the environment. Once this is done, the institution can then set environmental targets and begin carrying out initiatives to reduce environmental burden.

It is absolutely essential that institutions identify the amount of carbon dioxide and waste they are generating as well as their total water drainage. This is because global warming and the creation of a zero-waste society are currently priority environmental issues. Identifying the amount of chemical substances used and ensuring that they are used and managed properly is also critical for businesses

that handle chemicals during manufacturing, processing, or repair procedures or whose use raw materials containing chemical substances during production (make products that contain chemicals). This also applies to businesses that sell chemicals or products that contain chemicals. Typically, the chemical substances that need to be identified are those covered under Pollutant Release and Transfer Register (PRTR) systems as specified in the Law concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (or Chemical Management Act). For more information on how to identify these substances, see item (4) of the Environmental Burden Checklist: “amount of chemical substances used” (Attachment 1).

Identifying and evaluating the status of environmental initiatives

The next step is to use the environmental initiative self-check procedure outlined in Chapter 6 along with the Environmental Burden Checklist (Attachment 2) to identify what kind of environmental initiatives are currently being carried out. Based on the results of their environmental burden self-check, institutions should determine the types of initiatives they are capable of carrying out while referring to those listed in the checklist. The institution should then set environmental targets and formulate an environmental activity plan that reflects their conclusions. When doing so, it is important that the current status of environmental initiatives (targeting the products and services produced, sold, or offered by the organization) are taken into account. Institutions that are implementing EcoAction 21 for the first time must conduct an initial review to assess their current status in terms of environmental issues, using the Environmental Initiative Checklist provided in Attachment 2. Beginning in the second year, institutions can use the implementation items in the checklist as a tool to help formulate environmental action plans and continue improving environmental initiatives—in addition to assessing their current status.

Recommendations

- Use the environmental burden self-check procedure to collect data and identify environmental burdens **other than carbon dioxide discharge, amount of waste generated, total water drainage (or water used), and the amount of chemical substances used (for businesses that handle chemicals)**.
- Identify the material flow and material balance for business activities as a whole.
- Establish evaluation standards for identifying activities with major environmental impact, such as the amount of consumption/output, frequency of use/output, and degree of harmfulness.

4. Keeping Track of Environmental Regulations

Institutions must identify the environmental laws and regulations that apply to their business activities, as well as any other relevant environmental requirements that they must comply with. These laws and requirements should be consolidated into a list, which should be carefully managed to ensure that it is always up to date.

Explanation:

Institutions must identify and correctly understand the environmental laws and regulations that apply to the business activities, products, and services of their target organizations. These laws and regulations must then be reviewed at least once a year (for example, at the beginning or end of each fiscal year) to ensure that they are always up to date.

Environmental laws and regulations may include laws or ordinances issued by ministries or national governments; statutes, bylaws, or other environmental requirements issued by municipal governments; local agreements; requests from customers (including delivery sites and business partners); or agreements made among members of professional organizations.

Institutions can find out which laws and regulations apply to them by visiting the Ministry of Environment website and the websites of the prefectures and major cities where they conduct business. Another way to get information is by contacting local public agencies in their communities.

Keeping track of environmental laws and regulations requires that institutions clearly identify which provisions and terms require their compliance. These regulations may not only limit the concentration of environmental pollutants and other contaminants, but also those that demand that institutions report any facilities or activities that cause environmental disruption; formulate plans for preventing global warming, reducing waste, or recycling; appoint and report personnel qualified to oversee environmental initiatives; or conform to environmental standards for products and services. Institutions can ensure proper compliance by identifying which regulations apply to their operations and clearly identifying the specific actions that must be taken. They must also clearly understand the demands of their customers (including delivery sites and business partners)—for example, requests regarding chemical substances used in products.

5. Setting Environmental Targets and Formulating an Environmental Action Plan

Once institutions have identified and evaluated their environmental policy, environmental burden, and the current status of their environmental initiatives, they must then use the results of these activities to set environmental targets and formulate an environmental action plan. Environmental targets should be quantitative wherever possible, and should include both mid- to long-range and yearly targets for reducing CO₂ emissions, waste generated, total water drainage, and the use of chemical substances; carrying out green purchasing; and voluntarily producing, selling, and offering more environmentally friendly products and services. The environmental action plan should include specific steps and a schedule for achieving environmental targets. It should also designate the person in charge of overseeing implementation. Finally, the environmental targets and environmental action plan should be distributed and explained to all relevant employees.

Explanation:

Environmental targets specify *what* will be done *where*, and by *when*. The environmental action plan specifies *what steps* will be taken *when* to achieve those targets, as well as *who is in charge* of implementation.

The environmental action plan should take into account the results of identifying and evaluating environmental burden and the current status of environmental initiatives at the institution. It should also conform to the institution's basic approach to environmental initiatives as set forth in the organization's environmental policy.

More specifically, in addition to listing environmental targets related to the environmental burdens and activities that have been targeted for improvement during the initial review, institutions must, with few exceptions, set targets for reducing CO₂ emissions (energy conservation), reducing waste (and/or recycling), reducing total water drainage (conserving water), reducing the use of chemical substances (for businesses that handle chemicals), carrying out green purchasing, and voluntarily producing, selling, and providing environmentally-conscious products and services.

In addition, environmental targets should specify both mid- to long-range goals to be achieved in 3–5 years and short-term goals to be achieved each fiscal year. These should be quantitative (numerical) targets wherever possible. If targets cannot be quantified, specific indicators and/or guidelines describing target achievement must be formulated.

The environmental action plan must also describe specific initiatives (achievement steps) that will be implemented each fiscal year to achieve the environmental targets. These initiatives should reflect the results of the environmental initiative self-check and the example initiatives given in the checklist. It should also contain a schedule and designate persons in charge of supervising and implementing each aspect of the plan.

The environmental targets and environmental plan should be revised each fiscal year or whenever a major change occurs in an institution's business activities.

In certain cases, an institution may find it difficult to further reduce environmental burden due to technological or economic limitations. In other cases, such as when a company rents office space, it is hard to identify the exact amount of water used or waste generated because water and waste disposal fees are part of a fixed common usage charge. In situations like these, institutions can either bypass quantitative targets and form qualitative ones, or else outline specific environmental protocols and regularly check their progress through proper observation and measurement.

In terms of reducing the use of chemical substances, some institutions may use only trace amounts in their manufacturing process or production materials, or product specifications may indicate a specific usage amount that the manufacturer does not have the authority to change. Instead of setting reduction targets, institutions in situations like these should regularly check to make sure that chemical substances are being managed properly.

Once formulated, environmental targets and the environmental action plan must be distributed and explained to all relevant employees.

Recommendations

- If the size of the organization warrants, set specific divisional or departmental targets in addition to targets for the entire institution.
- In addition to the plan covering yearly targets, formulate a mid- to long-range environmental action plan to address mid- to long-range environmental targets.
- Reassess business activities from the perspective of biological diversity.
- Work to implement specific initiatives* to preserve and promote the sustainable use of biological diversity.

*For more information on specific biological diversity initiatives, see Attachment 2, 4. Other (1) Specific initiatives to preserve and promote the sustainable use of biological diversity.

- Sample environmental targets and other environmental action plan items

Example of a specific environmental target:

- Cut the company's total waste output to 90% of FY08 levels by the end of FY11. Reduce total output by 3% (90 tons) in FY09 by reducing Department A's output by 30 tons and Department B's output by 60 tons. Reduce output by 3% (90 tons) in FY10 by reducing Department A's output by 30 tons, Department B's output by 60 tons, and Department C's output by 30 tons. Reduce total output by 4% in FY11.

Example of a set of achievement steps outlined in an environmental action plan:

- Establish a recycling route and hand its operation over to a recycling company.
- Establish garbage-sorting standards. Carry out education and training programs to ensure that sorting is understood by all employees and consistently practiced.
- Improve materials yield to reduce waste
- Thoroughly implement quality management to reduce defects
- Set up a collection line for waste materials so that they can be reused

Example schedule items:

- Research and select a recycling company by [month]
- Inform/educate all employees on sorting standards by [month]
- Achieve thorough and consistent sorting practices by [month]

- Green purchasing targets and targets for voluntarily producing, selling, and providing environmentally-conscious products and services

EcoAction 21 and other environmental management systems have placed priority on environmental initiatives carried out by individual offices and plants. However, in order to build a sustainable society, it is critical not only that offices and plants carry out environmental initiatives, but also that the company as a whole works to carry out environmental initiatives that address the materials it purchases and the products/services that it produces, sells, and provides. Environmental initiatives that address an institution's business activities should always contain these two fundamental aspects.

Establishing and working to achieve environmental targets aimed at reducing the environmental burdens indicated in the EcoAction 21 guidelines is also a necessary part of taking a more proactive role in environmental efforts.

Institutions must also carry out initiatives that address the entire lifecycle of products. This begins with pre-manufacturing stages such as planning, development, design, and materials procurement, and extends to post-manufacturing stages like transport, sales, application, use, disposal, and collection. The lifecycle initiatives should suit the unique characteristics of each organization, including sector, category, size, materials and other items purchased, and specific products/services produced, sold, or provided.

Ideally, all targets should be quantitative (numerical). When this is not possible, institutions should set environmental targets for initiatives like the following:

- Collect information on environmentally-friendly products, such as identifying any recycled materials that can be used
- Hold regular meetings to discuss ways to decrease the environmental burden of our products
- Investigate the status of environmental initiatives being carried out by other companies

For additional information on target setting, see the Environmental Initiative Checklist in Attachment 2, 3. Products and services.

Examples of environmental targets related to products and services

- Design products that are energy efficient and/or conserve resources
- Increase the percentage of energy efficient and/or resource-conscious products produced or sold
- Design products that are easy to recycle
- Design products that contain very few harmful chemical substances
- Design products that are made largely from recycled materials
- Produce and/or sell environmentally-friendly products
- Adopt construction methods that have low environmental burden
- Design more efficient transport routes
- Simplify or eliminating product packaging/wrapping at retail outlets, encourage customers to bring their own shopping bags
- Use environmentally-friendly materials
- Use environmentally-friendly office supplies and equipment
- Purchase certified Eco Mark products and/or products that meet energy efficiency standards

- Biological diversity

The Convention on Biological Diversity defines biological diversity as “the variability among living organisms from all sources” and identifies three levels of diversity: within species, between species, and of ecosystems. Put more simply, each region has its own unique natural environment that is home to specific forms of life—all of which are interconnected with one another.

Human lives that are safe and abundant contain several natural features, or “environmental gifts”. These include water, oxygen, food, textiles, wood, fuel, medicine, a stable climate, and protection against natural disasters. However, the conditions for biological diversity have become dire in recent years, with forested areas one-fifth the size of Japan being destroyed every year, and species disappearing at a rate that has increased 1,000-fold over the last several hundred years.

Japan’s Basic Law for Biological Diversity outlines the responsibility of institutions in preserving biological diversity, while our Third National Strategy on Biological Diversity specifies the relationship between biological diversity and business activities. The strategy also outlines 28 socioeconomic initiatives to preserve and promote the sustainable use of biological diversity. The Ministry of Environment has also issued Guidelines for Private Sector Engagement in Biodiversity (August 2009) to encourage institutions to get involved in efforts to promote biological diversity.

It is only when institutions become aware of how their business activities directly and indirectly affect biological diversity and take steps to preserve and promote sustainable use of environmental gifts so that they may be enjoyed for generations to come.

II. Do (Implementing the Plan)

Once institutions have set up a system that allows them to formulate an environmental policy, set environmental targets, and carry out an environmental action plan, the next step is to put these components into action. Part of Stage II. Do (implement the plan) is stipulating specific rules for how to properly carry out the environmental action plan.

6. Setting up an Implementation Structure

Set up an effective implementation structure that allows the institution to set up, operate, and maintain an EcoAction 21 environmental management system as well as carry out environmental initiatives.

This structure should clearly delegate individual roles, responsibilities, and authority. It should then be distributed and explained to all employees in the organization.

Explanation:

In order to set up and effectively operate an environmental management system, the representative (top executive) of the organization must set up an implementation structure that involves every member of senior management. The structure must clearly designate the roles, responsibilities, and authority of each member, including the top executive and those in charge of overseeing and implementing initiatives in each division. It is critical that every individual in the organization clearly understands his or her own part in the environmental management system. That is why it is important to make sure that every employee is provided with diagrams and other tools to make them fully aware of how the implementation structure is set up.

If the size of the organization requires it, the company representative (top executive) must also appoint a Chief Environmental Officer. The company representative gives the Chief Environmental Officer the authority to oversee all activities involved in setting up, operating, and maintaining the environmental management system. In addition to being responsible for these activities, the Chief Environmental Officer also reports back to the company representative regarding activity status and progress.

In smaller institutions, the company representative (top executive) may serve the dual function of Chief Environmental Officer while overseeing environmental activities in each division.

Recommendations

- The company representative (top executive) should not only motivate and encourage members of the organization, but also provide the resources* needed to properly carry out environmental initiatives.

*Resources include the people, things, and money required to carry out environmental initiatives—in other words, the company representative must provide the right personnel, equipment, facilities, and financial resources.

7. Providing Education and Training

Provide the education and training needed to properly carry out EcoAction 21 initiatives.

Explanation:

Education and training should include programs aimed at all employees as well as programs aimed at members engaged in specific types of work. The latter could include those involved in work regulated by environmental legislation that affects the organization, those engaged in business activities with particularly severe environmental effects, or those responsible for handling potential emergency situations. The purpose of training these members is to ensure that they acquire the qualifications and skills needed to accurately perform their designated tasks.

Institutions must ensure that every employee is properly carrying out environmental initiatives. This requires that the organization's environmental policy is thoroughly understood and that everyone is fully aware of their role in carrying out the activities needed to achieve the environmental targets and environmental action plan formulated by the organization. Managers in particular must fully understand their roles and responsibilities as division leaders. In addition, it is critical that these leaders are aware of current environmental issues, understand what environmental management means, and know why environmental initiatives must be carried out.

Institutions must make sure that members engaged in specific types of work (as outlined above) have the qualifications required by environmental regulations and undergo the appropriate training, whether at actual worksites or elsewhere.

The following are examples of the kinds of information institutions should provide through environmental education and training programs.

- **Raising awareness**

- For all employees
 - Current environmental issues and the significance and importance of environmental initiatives under EcoAction 21
 - Information and procedures related to environmental targets and parts of the environmental action plan that affect the entire organization
 - Information and procedures related to environmental targets and parts of the environmental action plan that affect employee's specific work tasks
 - Individual roles and responsibilities
- For management
 - Significance and importance of environmental initiatives
 - Basic structure of EcoAction 21
 - Division environmental targets and details of the environmental action plan
 - Roles, responsibility, and authority of division representatives

- **Requirements for those engaged in specific types of work**

- Those in charge of tasks regulated by environmental legislation
 - Detailed information on legislation and compliance procedures
 - Required qualifications and skills (specific roles requiring qualification include: Pollution Control Managers, Energy Managers, Specially Controlled Industrial Waste Supervisors, and Handlers of Dangerous Objects)
- Those engaged in activities with particularly severe environmental effects
Example personnel and training content:
 - Drainage treatment personnel: drainage treatment procedures, standards requiring compliance
 - Incinerator operators: operation manuals, standards requiring compliance
 - Emergency response teams: procedures for handling emergencies

Recommendations

- Formulate a yearly education/training plan and carry out programs tailored to each employment level and type of work.
- Record the results of all education and training programs held.

Requirements for larger organizations*

Record the results of all education and training programs held.

*Generally refers to those organizations with 100 employees or more

8. Engaging in Environmental Communication

Carry out internal communication within the organization regarding EcoAction 21. Take environmental complaints or requests originating outside the company seriously, address them when necessary, and record the results of this process.

Regularly create and publish environmental activity reports.

Explanation:

Internal communication within the organization is an important part of effectively enacting EcoAction 21. Institutions should make use of workplace meetings or bulletin boards to provide information related to EcoAction 21 (such as progress towards environmental targets or the status of the environmental action plan) to their employees. At the same time, institutions should take employee feedback seriously to ensure a two-way flow of information.

Institutions should also set up a contact point (contact person) to receive environmental complaints or requests originating outside the company. It is important that these are earnestly addressed.

Information on all environmental complaints or requests received by the institution (when, from whom, regarding what, person(s) in charge of responding) should be recorded along with the results of any measures taken to address them. Depending on the outcome of those measures, preventative measures should also be put in place to prevent the same complaint from arising again.

Another form of environmental communication involves institutions reporting the status of their environmental initiatives. These reports serve an important social function, and are also a critical factor in of promoting the organization's environmental initiatives and gaining public trust. A company's reputation is built on proactively providing information in environmental activity reports.

Recommendations

- When carrying out internal communication, disseminate information on the environmental management system and other environmental topics through morning meetings, bulletin boards, company email, and the like.
- Establish a procedure for receiving suggestions about environmental improvements and other feedback from organization members.
- Establish a procedure for handling environmental complaints and requests and ensuring two-way environmental communication with local citizens and other stakeholders.
- Establish a procedure for handling environmental complaints and requests (from customers, business partners, communities, etc.) related to products and services.

9. Implementing Plans and Operating Systems

Implement the initiatives necessary to carry out environmental policy and the environmental action plan to achieve environmental targets.

Create written implementation procedures or guidelines when necessary to ensure that environmental policy is carried out properly and environmental targets are achieved.

Explanation:

Implement whatever initiatives are needed to carry out environmental policy and the environmental action plan to achieve environmental targets. It is particularly important that institutions properly carry out activities designed to reduce those environmental burdens that were previously identified as mandatory targets of environmental initiatives. When necessary, institutions should create and use manuals outlining specific implementation procedures or guidelines for these activities.

Recommendations

- Establish mandatory standards to be followed as one of the implementation requirements in environmental manuals.
- Establish and monitor independent management indicators to ensure compliance with environmental regulations.
- Establish specific protocols for complying with environmental regulations, such as measurement methods/frequency and persons in charge.
- Give business partners and permanently stationed workers from other companies information on the environmental action plan and require them to carry out any necessary initiatives.
- Include any items required for environmental initiatives in agreements made with contractors.

10. Preparing for and Handling Environmental Emergencies

Anticipate possible environmental accidents and emergencies, establish measures for responding to them, and regularly carry out practice drills. Verify the effectiveness of the response measures following an accident/emergency situation or practice drill and revise them as needed.

Explanation:

When an accident or disaster occurs, it can result in environmental emergencies like oil or chemical spills. Institutions must examine their own business activities to determine what kinds of accidents or emergency situations could have severe environmental effects. They must then make preparations to minimize the extent of any possible pollution or environmental damage by establishing preventative emergency response measures.

The next step is to make sure that these response measures are effective. For example, institutions need to regularly carry out emergency drills to make sure that they are able to minimize damage and environmental effects, that response equipment can be put to use immediately, and that emergency contact information is up-to-date. Drill training should also be carried out so that emergency measures can be implemented smoothly.

Finally, institutions need to verify whether emergency response measures were effective after an emergency situation occurs or after drills are carried out, and revise the measures as needed.

11. Creating and Managing Environmental Documents and Records

Create the documents necessary to carry out EcoAction 21 initiatives and manage them properly.

Keep records of all initiatives required under EcoAction 21 and manage them properly as well.

Explanation:

Clearly indicate who is in charge of writing environmental documents (who has the authority to revise them), when they were issued, and any changes or revisions to the content. Establish a storage period for environmental records and explicit procedures for destroying them.

Proper management of documents is also required. For example, they should be kept in a designated location and should be ready to use when and where they are needed.

In order to ensure that documents and records are managed properly, it is not necessary that they be kept separately in hard copy and digital form. Instead, documents and records should be arranged in a format that suits the needs of the individual organization.

The following documents and records are required to carry out EcoAction 21 initiatives.

Written documents:

- Environmental policy
- Environmental targets
- Environmental action plan
- List of applicable environmental laws and regulations
- Implementation structure (or organizational chart indicating roles and responsibilities)
- Any manuals needed to carry out initiatives
- Anticipated effects of possible accidents or emergencies and response measures
- Environmental activity reports

Records:

- Results of the environmental burden self-check
- Results of the environmental initiatives self-check
- Status of compliance with environmental laws and regulations
- Complaints or other feedback received from outside the company
- Results of environmental emergency drills or training

- Progress towards environmental targets, implementation of environmental action plan, achievement evaluation results
- Results of corrective or preventative action taken towards any environmental issues
- Results of evaluation/revision of overall status of environmental initiatives by the company representative (top executive)

Recommendations

- It is recommended that institutions also create the following documents:
 - Educational / training program outlines
 - Organizational guidelines for setting up, operating, and maintaining the environmental management system (e.g., an environmental management manual)
- In addition, it is recommended that institutions:
 - Establish procedures for revising and abolishing environmental management manuals, handbooks, and the like. Prevent misuse by destroying outdated materials and carrying out regular revisions and updates.
 - Decide on a storage period for records and store them in an organized manner. Take steps to prevent loss or damage.

III. Check (Reviewing and Evaluating the Status of Initiatives)

Progress towards achieving environmental targets, the implementation status of the environmental action plan, and the operation of the environmental management system must be checked (observed and measured) often. The situation should then be evaluated. If there are any problems, corrective action should be taken or preventative measures taken so that potential problems do not occur.

If environmental targets cannot be achieved (or if it appears that achieving them will be too difficult), institutions must investigate and analyze the cause of the failure, consider appropriate countermeasures (including revision of the environmental targets and/or environmental action plan) and carry them out. It is important for institutions to recognize that failing to meet targets is less of a problem than neglecting to identify the cause of the failure and take steps to resolve those issues.

12. Checking the Status of Initiatives and Correcting/Preventing Problems

Progress towards achieving environmental targets, the implementation status of the environmental action plan, and the operation of the environmental management system must be checked and evaluated regularly.

If there is a problem with target achievement, implementation of the environmental action plan, operation of the environmental management system, or compliance with environmental laws and regulations, corrective action must be taken and preventative measures implemented when necessary.

Explanation:

Checking (observation and measurement) and evaluation

Progress towards achieving environmental targets, the implementation status of the environmental action plan, the operation of the environmental management system, and the status of compliance with environmental laws and regulations must be regularly checked (observed and measured) and evaluated.

Checking and evaluating progress towards environmental targets requires that institutions set their own six-month or quarterly goals (progress indicators) to help accurately judge achievement status and ensure that targets will be met within the established period. These goals (progress indicators) should be used as a standard to determine (at the six-month or quarter mark) whether the final target will be achieved or not

if the institution continues to carry out its initiatives in the same manner. If the check and evaluation results show that the institution is behind the standard, corrective action (countermeasures) should be taken.

Checking and evaluating the implementation status of the environmental action plan means determining whether the initiatives outlined in the plan are being carried out according to schedule and in line with designated responsibilities and roles. Checking and evaluating the operation of the environmental management system involves determining whether the requirements specified in the system guidelines during setup are being met, whether initiatives are being carried out according to company rules, and whether the system itself is functioning effectively.

Evaluating environmental laws and regulations involves looking at whether the company has conformed to the rules by filing the appropriate documents, carrying out measurements (at the right time and frequency), and complying with standard values. Institutions should also look at past performance to determine whether they can maintain compliance by continuing in the current manner. If the institution has not formulated environmental targets for identified environmental burdens that require specific initiatives or for other activities, checks and evaluations must be carried out to determine whether pro-environment initiatives are being properly implemented.

Checks and evaluations should be carried out regularly. The optimum frequency depends on the nature of what is being assessed, and could be yearly, quarterly, monthly, or even daily.

The person in charge of conducting the checks and evaluations should report the results to the check/evaluation supervisor, who then evaluates the data and determines appropriate countermeasures when needed. A specific procedure for reporting results should be established, including who should report information to whom and how often. For example, those in charge of the actual work might report to the work supervisor, who then reports to the division supervisor. The division supervisor would then report to the Chief Environmental Officer or company representative in charge of implementing EcoAction 21.

Correction and/or prevention of problems

If checks or evaluations show that there is a problem with target achievement, implementation of the environmental action plan, operation of the environmental management system, or compliance with environmental laws and regulations, institutions must first investigate and analyze what is causing the problem, eliminate it, and then take corrective action (introduce countermeasures) to prevent the problem from happening again. If there are currently no problems but it is predicted that one may occur, preventative measures should be taken to stop the problem in advance.

When taking corrective action or preventative measures, the most important thing is not the problem itself, but finding out what caused the problem (or what factors may cause a problem to occur).

For example, the cause of a problem may be that the work procedure is unclear (there is no procedural manual), that the measuring equipment is defective (it is not calibrated regularly), that employees are not fully informed or trained properly (there is no education or training being carried out), or that the

environmental targets or environmental action plan themselves are nearly impossible to achieve. The company would need to clearly identify the cause, and then take steps to ensure that the problem did not occur again (this could mean revising the work procedure, educating or training employees, or revising environmental targets or the environmental action plan).

Once corrective action is taken, the results should be evaluated for effectiveness, continuing the cycle of ongoing improvement.

In addition, it is important that problem situations occurring in one department are communicated to other related departments so that similar issues do not arise (this is called “horizontal deployment” of countermeasures).

Note that a basic requirement for institutions trying to receive EcoAction 21 certification and registration is confirmation of compliance with environmental laws and regulations. Solid checks must be conducted to meet this criterion.

Recommendations

- Conduct internal audits*.

*Whenever possible, institutions should conduct an internal audit of their entire environmental management system at least once a year to check/evaluate the status of environmental initiatives from an objective perspective. The audits should provide an unbiased evaluation as to whether the environmental management system conforms to the requirements set forth in the guidelines, whether the organization is abiding by established rules, whether environmental targets have been achieved (or can be achieved), whether the environmental action plan is being properly carried out, or whether continuous improvements are being made to environmental initiatives and the system itself. The results of the audit should then be reported to the company representative (top executive) and Chief Environmental Officer.

Requirements for larger organizations*

Conduct internal audits.

*Generally refers to those organizations with 100 employees or more

IV. Action (Evaluating and Revising the Entire Process)

The company representative (top executive) must evaluate the overall results of EcoAction 21 initiatives, including environmental target achievement, results of implementing the environmental action plan, and the results of operating the environmental management system. In preparation for the next PDCA cycle, the representative must then direct any necessary enhancements or modifications to ensure continuous improvement of the environmental management system and environmental initiatives.

13. Overall Evaluation and Review by the Company Representative

The company representative (top executive) must regularly evaluate the overall status of EcoAction 21 initiatives, carry out across-the-board revisions, and issue any necessary directives.

Explanation:

The company representative must regularly (at least once a year) conduct an across-the-board evaluation and revision of environmental initiatives. To do this, the representative must collect the information necessary to revise EcoAction 21 initiatives as a whole, or request a report from the Chief Environmental Officer indicating whether the environmental management system is functioning effectively and whether environmental initiatives are being properly carried out from a management perspective.

Required information for revision includes the status of environmental target achievement, the results of implementing/operating the environmental action plan, status of compliance with environmental laws and regulations, and any environment-related complaints or requests from outside the institution.

The results of the evaluation by the company representative should then be used to determine whether any changes need to be made to the institution's environmental policy, environmental targets, environmental action plan, or environmental management system. Specific instructions on how those modifications are to be carried out should then be issued to the Chief Environmental Officer and related personnel.

Record the results of the revisions. Records should include the results of directives from the last evaluation as well as current directives and evaluation results.

- **Evaluation and review by the company representative**

Evaluating EcoAction 21 initiatives does not mean simply listing final results like “achieved” or “not achieved” for environmental targets. It is important to look carefully at the outcome of achievements and initiatives. If targets were achieved, the representative should make sure there were no problems with the way the targets were set or with their level of difficulty. If targets were not achieved, it is important to identify the cause(s) of failure. The effectiveness of the environmental management system should also be analyzed, and the company representative should carefully consider factors such as how environmental targets should be established in the coming fiscal years, what kind of initiatives should be carried out, and what changes should be made to the environmental management system. The results of this inquiry should then be used to clarify areas that need improvement.

Chapter 4: Environmental Activity Reports

This chapter sets forth the EcoAction 21 environmental activity report requirements.

EcoAction 21 initiatives require that institutions seeking certification and registration create and publish *environmental activity reports*. Even small- and medium-sized institutions have a civic responsibility to create and issue reports, which are also an indispensable part of promoting the organization's environmental initiatives and building trust in the community.

Environmental activity reports are essentially a means of fulfilling an institution's responsibility to explain its activities to the community. They are not meant to be publicity documents. Therefore, it is critical that the reports are open and straightforward, properly addressing the required items. It is the sincere effort to release information to the public that earns community trust—a stance that is essential to ensuring the continued existence of an organization. Understand that any attempt to falsify information or hide inconvenient truths will have the opposite effect of causing the institution to lose its standing in the public eye.

The following nine items comprise the minimum required content that institutions must include in their environmental activity reports. When actually writing the reports, it is important to make an effort to present the information in a clear, easy-to-understand manner and build on the content gradually. Environmental activity reports published by certified and registered institutions are available on the EcoAction 21 Central Secretariat website for reference.

Once the reports are created, it should be distributed to local public agencies, regional consumer groups, environmental NGOs, customers, stakeholders, employees, and any other interested parties. Reports can be used more effectively if they are posted on websites or distributed to stakeholders.

1. Creating Environmental Activity Reports

Environmental activity reports must be created regularly (typically once every fiscal year) and include the following information:

- 1. Organization overview (name of business establishment(s), location(s)/address(es), business overview, scale of operations)**
- 2. Target operations (certified/registered operations, period of time covered by the report and date issued)**
- 3. Environmental policy**
- 4. Environmental targets**
- 5. Environmental activity plan**
- 6. Environmental target progress/achievement**
- 7. Evaluation/results of implementing the environmental action plan, initiatives planned for the upcoming fiscal year**
- 8. Status of compliance with environmental laws and regulation (confirmation, evaluation of results, violations), any legal action or lawsuits**
- 9. Results of overall evaluation and review by the company representative (top executive)**

Explanation:

The organization overview 1 should include the following information. Note that information in this section is not limited to certification and registration target operations and should cover all business establishments in the organization. Be sure to include the name and location of headquarters as well as all plants, shops and office locations, plus an overview of business activities and the scope of operations at each.

- Name of business establishment(s) and name(s) of company representative(s)
- Location(s)/address(es)
- Contact information for the Chief Environmental Officer and person(s) in charge of environmental operations
- Brief description of business activities
- Scope of operations (data indicating the size of the institution, such as production volume/shipment value of key products, number of employees, total floor area, etc.)

Specifying target operations 2 is an environmental management system requirement (1. Clarify Affected Organizations and Activities). The scope of target operations must be identical to the portion of

the organization possessing (or seeking) EcoAction 21 certification and registration. Note that if initiatives are currently only being applied to a portion of the organization, a plan for gradually including the entire organization must be included in the report along with an implementation schedule.

Information on environmental targets 4 must include sub-targets for each fiscal year in the period covered by the report as well as mid- to long-range targets.

The environmental target progress/achievement 6 section must include the emission factor of purchased electricity (from each electrical power supplier) as calculated when the volume of CO₂ emissions was identified.

The specific format of the environmental activity report is generally limited only by the creativity of each institution. For example, some institutions may present all available past environmental target progress/achievement data graphically, so that readers can see yearly changes at a glance. It is also a good idea to find a way to incorporate pictures that show the status of environmental initiatives.

Recommendations

- During the first year*, record yearly data on major environmental burdens
*Many institutions begin implementing EcoAction 21 initiatives partway through the fiscal year, so it is common for data collected during the first year to be incomplete. However, data should ideally be calculated in yearly intervals.
- Record three-year trends in yearly data for environmental burdens that must be identified.

2. Publishing Environmental Activity Reports

Institutions must publish their environmental activity reports, ensuring that they are available at their offices and can be viewed by the general public.

Whenever possible, institutions must also publish the reports on internet websites and/or create environmental activity report booklets for distribution.

Explanation:

Once environmental activity reports are published, they should be made available at offices and other corporate locations so that they can be viewed upon request by any outside party.

The EcoAction 21 Central Secretariat also publishes environmental activity reports along with the names of certified and registered companies on its website. These reports can be searched by industry, region, or institution size online.

Each institution should also come up with additional ideas of how to make its reports available to the wider public.

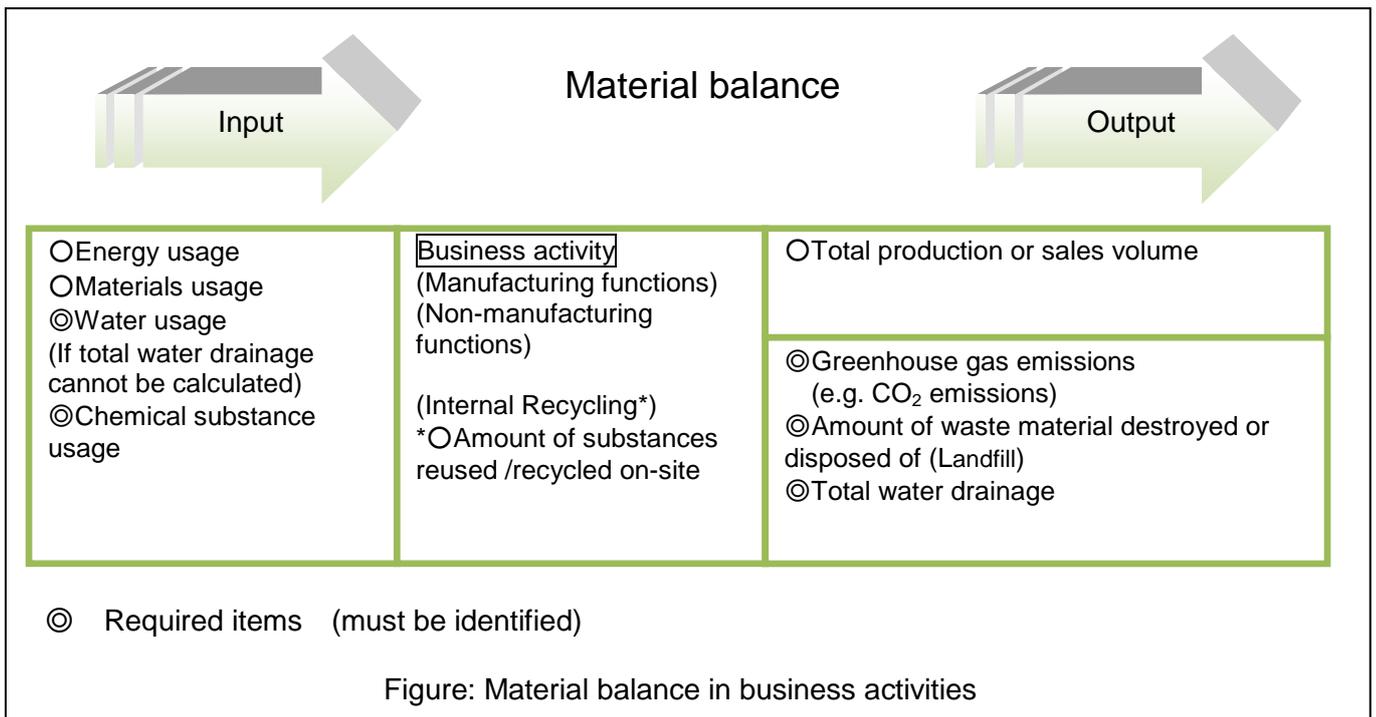
Recommendations

- Carry out further efforts to promote environmentally friendly management by distributing environmental activity reports to customers, business partners, and other interested parties

Chapter 5: Self-Checking Environmental Burden

1. Purpose

The first step in carrying out environmental initiatives is knowing the amount of environmental burden generated by the institution in the course of its business activities. Institutions must identify nine environmental burden items based on the concept of “material balance”. Material balance refers to the total input and output of energy, materials, and other substances in the course of all business activities at the institution. Note that one of the nine items, greenhouse gases, requires that institutions identify their CO₂ emissions, waste output, total water drainage (or water usage), and use of chemical substances (for businesses that handle chemicals).



In order to fully understand environmental burden, institutions must look at all of their business activities to determine which ones have serious environmental effects. Any activities, facilities, equipment, or substances with a significant influence on the environment must be clearly identified.

An effective way for institutions to pinpoint these activities is to separate their business activities into discrete processes and then identify the environmental burden generated during each step. Specifically listing what is being input and what is being output (i.e., discharged into the water or atmosphere) at each step makes it possible to identify precisely which activities, facilities, equipment, and substances have serious environmental effects. This then makes it clear to institutions what must be done to reduce their environmental burden.

An institution’s total production or sales volume is not generally considered environmental burden, but it is important that institutions calculate this in order to understand their overall material balance.

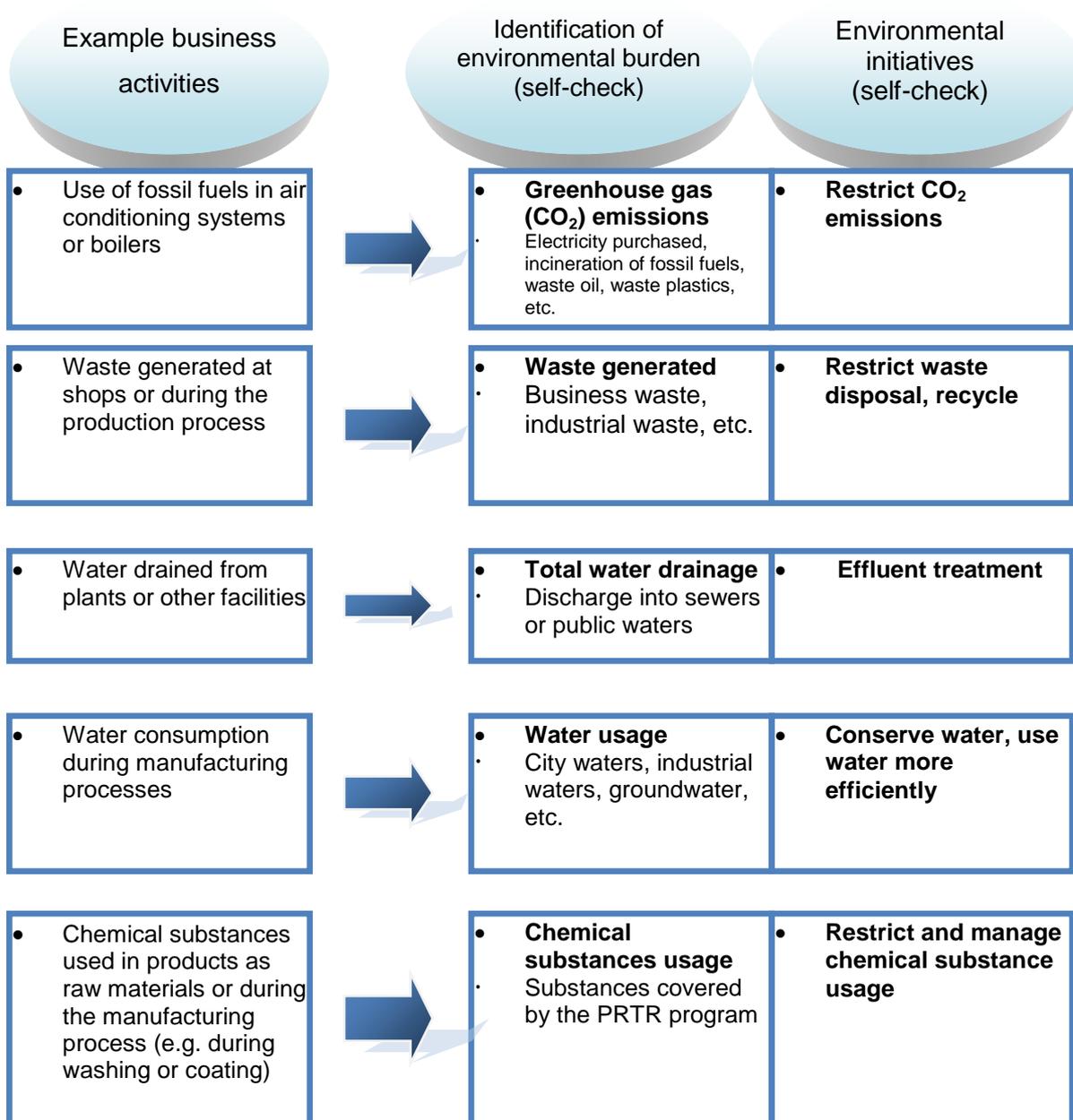
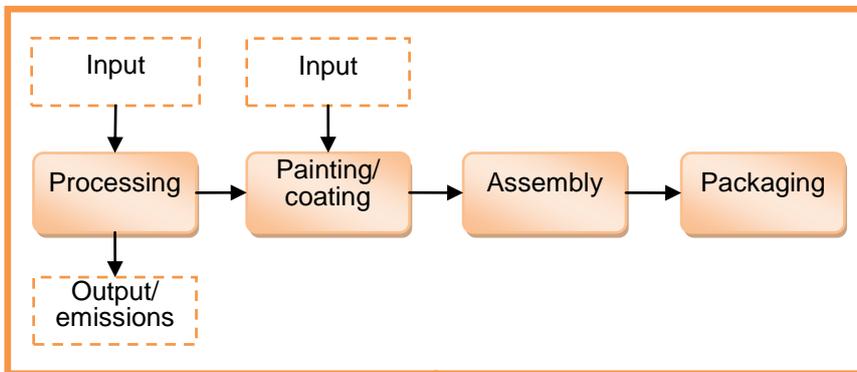


Figure: Business activities and environmental burden items

In order to curb global warming and create a recycle-oriented society, it is also important that institutions identify environmental burden over the entire lifecycle of their products—including effects that occur “upstream” and “downstream” of their own business activities.

- Business activity process (example)



- Product lifecycle (example)

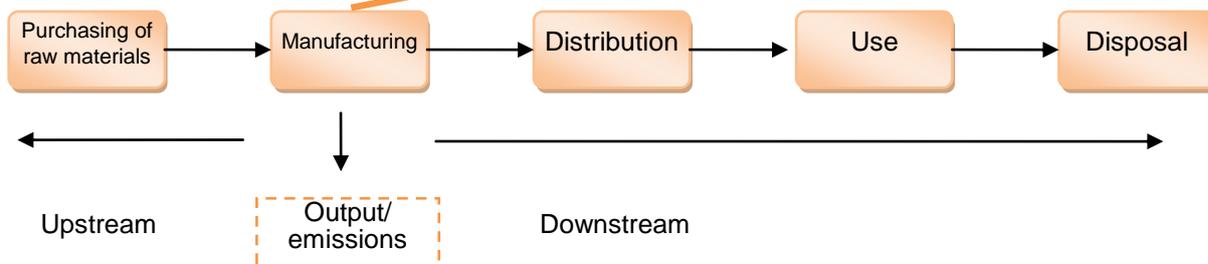


Figure: Business activities and their environmental effects

2. Using Attachment 1 (Environmental Burden Checklist)

(1) Points to consider when using the checklist

- The checklist in Attachment 1 is provided as a sample tool to make it easier for institutions to identify their own environmental burden. Institutions may alter the checklist items, emission factors, units, and other details to suit their individual circumstances. The important thing is making sure that environmental burdens are assessed according to the same standards each year so that simple comparisons can be made.
- The CO₂ emission factors provided are those reported by the national government for each electrical power supplier. However, in order to properly manage environmental targets and ensure accurate year-on-year comparisons, institutions should not use new factors reported each year, but should instead use the same factor for a fixed period (such as the period

designated for achievement of mid- to long-range targets). This emissions factor should then be reported along with performance results.

- The checklist is set up to allow institutions to calculate their yearly emissions. However, institutions should also make year-on-year comparisons and analyze data trends over a 2–3 year span wherever possible. This information is necessary for conducting evaluations (e.g. determining how things should be improved) and should be used in formulating plans and initiatives.
- Institutions should aim to reduce their total environmental burden. However, they should also look to implement environmental initiatives that are economically beneficial from a management standpoint. To this end, institutions should not only identify and evaluate the results of environmental initiatives in terms of their effect on total environmental burden, but should also identify their efficiency in terms of economic value. This can be done by calculating and managing environmental efficiency indicators. For example, the checklist includes a “scale of activities” column so that the results of environmental initiatives can still be measured even if size of the institution changes. Institutions should choose the indicators that are appropriate to their individual operations (there is no need to calculate every single one).

Sample environmental efficiency indicators

<u>Production output or net sales volume (yen)</u>	(Inverse can also be used)
CO2 emissions (tons)	
<u>Value added (yen)</u>	(Inverse can also be used)
Waste generated (tons)	
<u>Value added (yen)</u>	(Inverse can also be used)
CO2 emissions (tons)	

Note: Value added can be calculated by (1) subtracting the cost of materials and other inputs (outside purchases) from net sales volume or by (2) adding operating profit, labor costs, and depreciation expenses.

Source: Ministry of the Environment, *Environmental Reporting Guidelines 2007*

(2) **Collecting data**

- When collecting and organizing required data, make effective use of information that the institution already has in its possession, such as accounting data or government statistics response forms.
- Because the documents containing required data are likely to be scattered throughout various parts of the organization or stored only on separate forms or invoices, it may take a long time to collect and organize the data at first. It is therefore a good idea to set up a system where all environmental information is kept together, allowing those in charge of data collection and sorting to identify and manage it easily.
- Setting, confirming, and evaluating targets is more effective if data is collected in frequent intervals (about once a month)
- Data should be properly organized so that performance results are available for at least the past three years.

Examples of internal documents that can be used for data collection

- Invoices showing the amount of energy, resources, or raw materials used, purchased, or paid for
- Copies of Report on Petroleum Statistics response forms
- Cargo manifest
- Payment slips from waste management contractors
- Invoices or payment slips for rented office equipment
- Equipment specifications or instruction manuals
- Copies of General Survey on the Emission of Air Pollutants response forms
- Copies of General Survey on the Emission of Water Pollutants response forms
- Environmental measurement certificates
- Chemical Substance Storage Management forms
- Material Safety Data Sheets

Chapter 6: Self-Checking Environmental Initiatives

1. Purpose

The first step in carrying out environmental initiatives is to use the Environmental Burden Checklist provided in Attachment 1 to identify the environmental burden generated by an institution in the course of its business activities and to specify which activities, facilities, or products in particular are generating significant environmental effects. The next step is to identify any environmental initiatives currently being implemented and use this information to determine those that should be carried out to reduce environmental burden.

Specifically, institutions should use the Environmental Initiative Checklist (Attachment 2) to grasp the status of current environmental initiatives and then look at the initiatives listed to identify specific ones that should be carried out in the future. Detailed information on the selected initiatives should then be used to formulate the institution's environmental targets and environmental activity plan. This ensures that they are carried out effectively.

2. Using Attachment 2 (Environmental Initiative Checklist)

(1) Format of the checklist

Items on the Environmental Initiative Checklist is divided into four main categories: (1) business activity input, (2) business activity output, (3) products and services, and (4) miscellaneous. Each category is then subdivided into energy efficiency, resource conservation, and other sections, which then list specific initiatives related to each topic.

Table: Format of the Environmental Initiative Checklist

1. Business activity input	<ul style="list-style-type: none"> (1) Energy efficiency (2) Conservation of resources (3) Water conservation and/or efficient water use (4) Restricting or managing the use of chemical substances
2. Business activity output	<ul style="list-style-type: none"> (1) Restricting GHG emissions, preventing air pollution (2) Restricting waste output, recycling, proper disposal/treatment (3) Wastewater treatment (4) Other initiatives to protect environmental living conditions
3. Products and services	<ul style="list-style-type: none"> (1) Green procurement (buying/using environmentally friendly products and materials) (2) Offering environmentally friendly products and services
4. Miscellaneous	<ul style="list-style-type: none"> (1) Initiatives to preserve biodiversity and promote sustainable use (2) Environmental communication and social contribution (3) Environmentally friendly expansion, remodeling, or demolition of buildings and other structures owned or operated by the institution

(2) Using the checklist

For institutions implementing EcoAction 21 for the first time

The first step for institutions implementing EcoAction 21 for the first time is to conduct an initial review to identify what environmental initiatives are currently being carried out. The checklist can be used during this process to identify the current status of initiatives.

The checklist is designed so that it can be used by a wide variety of institutions—manufacturers, construction companies, transport companies, retailers, hospitals, schools, or public agencies. The environmental initiatives it lists are nonspecific and can usually be implemented across different industries. However, some initiatives will simply not apply to certain industries. If this is the case, the institution should enter a slash mark (/) in the left-hand check column. All other initiatives should be evaluated using the three-stage system below:

• Already fully implemented	○
• Already partially implemented, but additional initiatives required	△
• Not being implemented	×

Note: Enter one of the above marks [circle (○), triangle (△), or (×)] in the leftmost column of the checklist.

Once this is done, the institution should determine which initiatives to carry out in order to reduce environmental burden for those activities specified in Chapter 5 as having significant environmental effects. Once initiatives are specified, they should be reflected in the institution’s environmental targets and environmental action plan. Refer to the detailed information on initiatives provided in the checklist during this step.

For institutions already implementing EcoAction 21 initiatives (after the first year)

Whenever necessary, institutions already implementing EcoAction 21 should consider the priority and importance of initiatives previously marked with a triangle (△) or (×). This information should then be used to determine specific environmental initiatives that need to be implemented in the future. There is no need to check every initiative listed as was done during the initial review in the first year.

(3) Points to consider when using the checklist

- Some of the items in the checklist indicate the degree to which initiatives in that area can reduce environmental burden (for example, reduce CO₂ emissions). These are included in the checklist under the heading “*effects*”. Refer to these sections when assessing the priority or importance of certain initiatives.

- Because there is a limit to the amount of information that can be included in the checklist, it is not intended to be an exhaustive list of all possible environmental initiatives. Helpful links and other information sources are provided for institutions seeking more detailed information/explanations for individual initiatives or information on additional initiatives. Initiatives are encouraged to make use of these resources when determining appropriate initiatives for their own business activities.

(4) Making the most of the checklist

Institutions looking to implement even more ambitious environmental initiatives can use the checklist to quantitatively evaluate their progress. This is done in the following manner.

- Converting initiative status into points to calculate overall progress

In the following evaluation method, the institution assign points to each initiative and then weights them according to implementation status [circle (O), triangle (Δ), or (×)].

The rating system below has institutions assign a level of importance (represented by a certain number of points) to each environmental initiative (item) in the checklist. These points are then multiplied by a different number according to the implementation status [circle (O), triangle (Δ), or (×)] of that initiative. Of course, the level of importance assigned to each initiative will differ by industry and for each institution.

- (1) Assign points to every item marked with a circle (O), triangle (Δ), or (×) using the following scale.

Level of importance

Initiatives that are of extreme benefit to the environment	3 points
Initiatives that are of moderate benefit to the environment	2 points
Initiatives that are of minor benefit to the environment	1 point

Note: Institutions should judge for themselves whether an item is of “extreme”, “moderate”, or “minor” benefit to the environment.

- (2) Multiply the points assigned in (1) by the following numbers, depending on how they are classified.

Items marked with a circle (O)	x 2
Items marked with a triangle (Δ)	x 1
Items marked with an (×)	x 0

Examples:

Item marked with a circle (O) and judged to have extreme benefit: 3 points × 2 = 6 points

Item marked with an (×) and judged to have moderate benefit: 2 points × 0 = 0 points

Item marked with a triangle (Δ) and judged to have minor benefit: 1 point × 1 = 1 point

- (3) Calculate total points for every item on the checklist (except those marked with a slash (/)). This number indicates the *level of environmental benefit* for each initiative, and the scores are used to compare the status of environmental initiatives over several years.

- Finding ways to quantify initiative status

Institutions should be able to quantify initiative status for many of the items in the checklist. This is particularly important for initiatives with associated environmental targets, as quantification will allow the institution to effectively evaluate target progress and achievement. Institutions should make every effort to find quantification methods that suit their individual circumstances. The following examples are provided for reference.

Table: Quantifying initiative status (examples)

• Percentage of low-emission vehicles owned (e.g. number of low-emissions vehicles ÷ Total number of vehicles owned)	←	Reducing environmental burden associated with shipping and transport
• Percentage of products offered by the company that are environmentally friendly (e.g. number of environmentally friendly products ÷ total number of company products)	←	Environmentally friendly product planning and development
• Amount of money spent on environmental efforts or used to finance local volunteer activities	←	Providing environmental information, contributing to society, and implementing initiatives to improve the local environment

Attachment 1: Environmental Burden Checklist

1. Size of Operations

Scale of activities	Unit	FY	FY	FY
Production output	Millions of yen			
Net sales volume	Millions of yen			
Number of employees	People			
Floor space (of plants, offices, etc.)	m ²			
()	()			
()	()			

2. Status of Environmental Burden (Summary List of Burdens)

Environmental burden		Unit	FY	FY	FY
(1) Greenhouse gas emissions	Carbon dioxide (CO ₂)	kg-CO ₂			
	{ _____ }	kg-CO ₂			
	{ _____ }	kg-CO ₂			
(2) Amount of waste generated and amount of landfill	Business waste	{ _____ }	t		
		{ _____ }	t		
		landfill	t		
	Industrial waste	{ _____ }	t		
		{ _____ }	t		
		landfill	t		
(3)-1 Total water drainage	Discharge into public waters	m ³			
	Discharge into sewers	m ³			
(3)-2 Water usage	Municipal waters	m ³			
	Industrial use waters	m ³			
	Groundwater	m ³			
(4) Amount of chemical substances used		kg			
		kg			
		kg			
(5) Amount of energy used	Energy purchased (excluding alt. energy sources)	MJ			
	Fossil fuels	MJ			
	Alternative energy sources	MJ			
	Other energy	MJ			
(6) Amount of materials used	Resources used	t			
	Recycled materials used	t			
(7) Amount of materials reused or recycled on-site	Amount of recycled materials used	t			
	Amount of recycled water used	m ³			
(8) Total production or sales volume	Products produced	t			
	Products that reduce environmental burden	t			
	Packaging materials used	t			

- Items (1) greenhouse gas emissions (CO₂), (2) waste generated, (3)-1 total water drainage, and (4) amount of chemical substances used are required items. If total water drainage cannot be calculated, item (3)-2 water usage is required instead.
- Enter totals for each item based on indicator calculation methods given in the following pages.
- In item (8) total production or sales volume, “production” refers to the amount of physical objects manufactured at plants and the like, while “sales volume” refers to the amount of everything intended for sale by the institution. Therefore, “sales volume” may include both products and services.

3. List of Indicators for Each Burden

(1) Greenhouse gas emissions [Sample of information for CO₂ emissions only (required)]

Fiscal year: from / (YY/MM) to / (YY/MM)

		Unit	Amount consumed (A)	Emission (kg-CO ₂) (A×B) or (A×B×C)	Percent age of total (%)	Emission factor (B)	Heat per unit (C)	
Carbon dioxide emissions	Energy consumption	Energy purchased		kWh			(kg-CO ₂ /kWh) ^(see note)	
		Fossil fuels	Kerosene	L			0.0679(kg-CO ₂ /MJ)	36.7(MJ/l)
			Fuel oil	L			0.0693(kg-CO ₂ /MJ)	39.1(MJ/l)
			City gas	Nm ³			0.0513(kg-CO ₂ /MJ)	41.1(MJ/Nm ³)
			Liquefied natural gas (LNG)	kg			0.0494(kg-CO ₂ /MJ)	54.5(MJ/kg)
			Liquefied petroleum gas (LPG)	kg			0.0598(kg-CO ₂ /MJ)	50.2(MJ/kg)
			Gasoline	L			0.0671(kg-CO ₂ /MJ)	34.6(MJ/l)
			Diesel	L			0.0687(kg-CO ₂ /MJ)	38.2(MJ/l)
		Total fossil fuels						
		Other	Heat supply (steam)	MJ			0.067(kg-CO ₂ /MJ)	
	Total other							
	Total energy consumed							
	Industrial waste	Waste oil	t			2900(kg-CO ₂ /t)		
		Waste plastics	t			2600(kg-CO ₂ /t)		
		Total waste incinerated						
Other	Other total							
	Total CO₂ emissions							

Note: Calculate using emission factors provided by the national government for each electrical power supplier. Factors for FY07 can be found at: <http://www.env.go.jp/press/press.php?serial=10574>

- Information in shaded cells is entered in the Status of Environmental Burden list.
- If LPG consumption is measured in volume (m³), convert it using the formula 1m³ = 2.07kg.
- “Industrial waste” refers only to waste that is incinerated or used as a product/fuel by the institution itself.
- If your institution inputs a significant amount of energy from sources not listed above, use the *Greenhouse Gas Calculation and Reporting Manual* (Ver. 2.4) from MOE/METI to calculate emissions.
- Institutions that wish to calculate methane, carbon monoxide (CO), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF6) emissions should create their own calculation sheets using the *Greenhouse Gas Calculation and Reporting Manual* (Ver. 2.4) from MOE/METI.

The *Greenhouse Gas Calculation and Reporting Manual* can be found at: <http://www.env.go.jp/earth/ghg-santeikohyo/manual/index.html54>

(3) Total water drainage and water used

(3)-1 Total water drainage

			Fiscal year: from / (YY/MM) to / (YY/MM)		
			Unit	Amount (m ³)	Percentage of total (%)
Total water drainage (m ³)	Discharge into public waters	Rivers	m ³		
		Lakes	m ³		
		Ocean	m ³		
		Miscellaneous channels and waterways	m ³		
		Total discharge into public waters	m ³		
	Discharge into sewers	m ³			
	Total water drainage				

- Information in shaded cells is entered in the Status of Environmental Burden list.
- Do not include drainage of rainwater that is not reused, treated, or altered.

(3)-2 Water usage

			Fiscal year: from / (YY/MM) to / (YY/MM)		
			Unit	Amount (m ³)	Percentage of total (%)
Water usage (m ³)	Municipal water	m ³			
	Industrial use water	m ³			
	Groundwater	m ³			
	Seawater or river water	m ³			
	Rainwater	m ³			
	Total water usage	m ³			

- Information in shaded cells is entered in the Status of Environmental Burden list.
- Water used as a raw material for manufacturing products should be listed in section (6) amount of materials used.
- Water that is reused or recycled on-site should be listed in section (7) amount of materials reused or recycled on-site. It should not be included in the above table.

(4) Amount of chemical substances used

Fiscal year: from / (YY/MM) to / (YY/MM)

	Type of chemical substance	Unit	Amount	Remarks (e.g. amount stored)
Amount of chemical substances used		kg		
		kg		

- Information in shaded cells is entered in the Status of Environmental Burden list.
- Institutions that handle products or raw materials that include chemical substances during their manufacturing, processing, or repair processes must identify the amount of chemical substances contained in these products. Typical products (other than raw materials) that contain chemical substances include cleansers, inks, grease and paints/coating materials.
- Usage amount is calculated by subtracting the amount in storage at the end of the yearly period from the amount purchased at the beginning of the yearly period. If this figure is difficult to calculate, the amount purchased can be used as-is. If known, institutions should enter the amount in storage in the “remarks” column.
- As a rule, institutions should identify the chemical substances covered under the Pollutant Release and Transfer Register (PRTR) program.
- To see how much of a certain chemical substance is included in a product, consult the list of ingredients printed on the container. If the chemical substance being measured is not listed or if there is not enough information on the ingredient list, request a Material Safety Data Sheet (MSDS) from the manufacturer, wholesaler or retailer of the product and use it to determine the amount of chemical substance included. To calculate the amount of chemical substance used during the year, multiply this amount of chemical substance in the product by the amount of product used that year.

(5) Amount of energy used (MJ)

		Fiscal year: from / (YY/MM) to / (YY/MM)					
		Unit	Amount used/ consumed(A)	Amount of energy (MJ) (A×B)	Percentage of total (%)	Heat per unit (B)	
Amount of energy used	Energy purchased (excluding alternative energy sources)	kWh				9.83(MJ/kWh)	
	Fossil fuels	Kerosene	L				36.7(MJ/l)
		Fuel oil	L				39.1(MJ/l)
		City gas	Nm ³				41.1(MJ/Nm ³)
		Liquefied natural gas (LNG)	kg				54.5(MJ/kg)
		Liquefied petroleum gas (LPG)	kg				50.2(MJ/kg)
		Gasoline	L				34.6(MJ/l)
		Diesel	L				38.2(MJ/l)
	Total fossil fuels	MJ					
	Alternative energy sources	Solar (photovoltaic)	kWh				3.6(MJ/kWh)
		Solar (heat)	kWh				3.6(MJ/kWh)
		Wind	kWh				3.6(MJ/kWh)
		Hydroelectric	kWh				3.6(MJ/kWh)
		Fuel cells	kWh				3.6(MJ/kWh)
		Waste	kWh				3.6(MJ/kWh)
		Total alternative energy	MJ				
	Other	Heat supply (steam)	MJ				
Total other		MJ					
Total energy used		MJ					

- Information in shaded cells is entered in the Status of Environmental Burden list.
- Calculate the energy used by multiplying the amount of fuel used/consumed by the amount of heat per unit (amount of fuel used/consumed × heat per unit).
- If your institution uses a significant amount of energy from a source not listed above, look up the heat per unit for that source and enter the information in the blank row(s).
- If LPG consumption is measured in volume (m³), convert it using the formula 1m³ = 2.07kg.
- Petroleum, coal, and other fuel substances used as raw materials in manufacturing products should be entered under (6) amount of materials used.

(6) Amount of materials used

Fiscal year: from / (YY/MM) to / (YY/MM)

		Amount (t)	Percentage of total (%)	
Amount of materials used (t)	Type of resources			
		Total natural resources		
	Type of recycled resource			
		Total recycled materials		
	Other materials			
		Total other		
	Total materials used			

- Types of resources (or recycled materials)
 - Metals (iron, aluminum, copper, lead, etc.)
 - Plastics (list by type)
 - Rubber
 - Glass
 - Wood
 - Paper (including office paper)
 - Agricultural products
- Types of usage
 - Parts, partially-finished goods, manufactured products, products ready for sale
 - Raw material, ancillary material, packaging material, etc.

- Information in shaded cells is entered in the Status of Environmental Burden list.
- Start by identifying the major materials used. Calculate the usage amount by weight (in tons).
- Materials covered in other sections (e.g. water, petroleum) that are used as raw materials in manufacturing products should be identified here.
- Do not include materials that are reused, recycled, or used in thermal recycling on-site in the above table.
- If the usage amount cannot be determined, it can be calculated by adding the total production or sales volume and the amount of waste material generated.

(7) Materials reused or recycled on-site

Fiscal year: from / (YY/MM) to / (YY/MM)

		Unit	Amount (t)	
Materials reused/recycled on-site	Type of resource	t		
		t		
		Total materials used		
	Water	Water reused	m ³	
		Rainwater used	m ³	
		Total water	m ³	

- Types of resources (or recycled materials)
 - Metals (iron, aluminum, copper, lead, etc.)
 - Plastics (list by type)
 - Rubber
 - Glass
 - Wood
 - Paper (including office paper)
 - Agricultural products

- Information in shaded cells is entered in the Status of Environmental Burden list.
- This table should only include materials that your institution reuses or recycles on its own (including water or other natural resources). It should not include materials acquired off-site.

(8) Total production or sales volume

Fiscal year: from / (YY/MM) to / (YY/MM)

	Name of product			Unit	Amount
	Total production or sales volume (t)	Product or service	Weight		t
				t	
				t	
				t	
Total products and services				t	
Measures other than weight					
Products or services that reduce environmental burden		Weight		t	
				t	
				t	
			Total products that reduce environmental burden	t	
		Measures other than weight			
Packaging				t	
				t	
				t	
				t	
				t	
				t	
	Total packaging		t		

- Identify either production volume or sales volume.
- Information in shaded cells is entered in the Status of Environmental Burden list.
- Identify either total production volume or total sales volume.
- “Total packaging” should include the volume of all forms of packaging stipulated under the Law for Promotion of Sorted Collection and Recycling of Containers and Packages.

Attachment 2: Environmental Initiatives Checklist

Use this checklist during the environmental initiative self-check procedures outlined in Chapter 6 to look at the organizations and activities targeted by EcoAction 21 initiatives.

1. Business activity input

1) Energy efficiency

a) Using energy efficiently and minimizing daily energy use

Check	Specific initiatives
	<ul style="list-style-type: none"> Shorten waiting times in the production process by reducing in-process inventory, running parallel lines, partial integration of the production line, and other measures
	<ul style="list-style-type: none"> Cut back on pretreatment, preprocessing, preheating, or other preparations to shorten production processing time
	<ul style="list-style-type: none"> Turn off lights in plants and offices during lunch breaks, overtime hours, or other times when they are not needed
	<ul style="list-style-type: none"> Keep lights off in locker rooms, storage rooms, and infrequently used restrooms, only turning them on when needed
	<ul style="list-style-type: none"> Set computers, copy machines, and other office equipment to energy-saving mode
	<ul style="list-style-type: none"> Turn computers, printers, and other office equipment off completely at night and during weekends and holidays
	<ul style="list-style-type: none"> Limit the use of elevators and encourage people to take the stairs
	<ul style="list-style-type: none"> Optimize air temperatures throughout the organization and at all times (keep air conditioners set to around 28°C and heaters to around 20°C) <p><i>Effects:</i> At one office building, raising the temperature two degrees in the summer (from 26°C to 28°C) and lowering it two degrees in the winter (from 22°C to 20°C) reduced energy use by 7.5% per degree in the summer and 2.5% per degree in the winter. (Source: The Energy Conservation Center, Japan <i>The Energy Conservation Guidebook for Buildings 2007</i>) http://www.eccj.or.jp/audit/build_guide07/2_1_01.html#2_1_01</p>
	<ul style="list-style-type: none"> Limit air conditioner and heater use only to those locations and times it is needed
	<ul style="list-style-type: none"> Turn off air conditioners and heaters in unused rooms
	<ul style="list-style-type: none"> Regulate temperature through the use of blinds or curtains
	<ul style="list-style-type: none"> Minimize the use of air conditioning and heating in the summer and winter by implementing “Cool Biz” in the summer and “Warm Biz” in the winter dress code modifications

b) Proper management of facilities, equipment, and instruments

Check	Specific initiatives
	<ul style="list-style-type: none"> • Turn off load interrupter switches or transformers when electrical power is not needed
	<ul style="list-style-type: none"> • Ensure optimum lighting performance by regularly cleaning light fixtures and replacing bulbs regularly
	<ul style="list-style-type: none"> • Adjust the temperature setting at the point where cooled or heated water enters temperature control equipment (such as refrigeration devices and boilers) as much as possible for more efficient operation; properly manage the equipment with regular checks and inspections <p><i>Effects:</i> One hospital cut their gas consumption by 8% by raising the temperature of cooled water entering gas refrigeration devices (powered by 13A city gas) from 7°C to 10°C during low-load conditions (at all times except July and August). (Source: The Energy Conservation Center, Japan <i>The Energy Conservation Guidebook for Buildings 2007</i>) http://www.eccj.or.jp/audit/build_guide07/2_1_01.html#2_1_02</p>
	<ul style="list-style-type: none"> • Lower the air ratio (excess air factor) on boilers and incinerators to reduce energy consumption (by reducing heat loss through exhaust or energy used by blowers) <p><i>Effects:</i> One hospital lowered the air ratio on their boilers (powered by 13A city gas) from 1.6 to 1.3, reducing their gas consumption by 2.1%. It is thought that the exhaust temperature was kept steady at 200°C (Source: The Energy Conservation Center, Japan <i>The Energy Conservation Guidebook for Buildings 2007</i>) http://www.eccj.or.jp/audit/build_guide07/2_1_01.html#2_1_03</p>
	<ul style="list-style-type: none"> • Minimize the line pressure in air compressor equipment to the required level.
	<ul style="list-style-type: none"> • Shut down temperature control equipment prior to the point when it is no longer needed, making effective use of the residual temperature inside the device (do not allow outside air to enter during precooling/preheating)
	<ul style="list-style-type: none"> • Use a total heat exchanger bypass system when outside temperature is between 20 and 27°C. (Total heat exchangers are devices that recover and reuse heat from heating and cooling. Bypass operation includes regular ventilation mode, operation during mild outside temperatures, and shutting down the heat exchange rotor.) Or, regulate air temperature by controlling the amount of outside air in the room with windows or doors.
	<ul style="list-style-type: none"> • Shut off hot water except in the winter months
	<ul style="list-style-type: none"> • Partially shut down elevators during evenings and on weekends/holidays
	<ul style="list-style-type: none"> • Optimize power usage of shared computers and other equipment by establishing user rules or putting someone in charge of managing them
	<ul style="list-style-type: none"> • Optimize air conditioning equipment operation by regularly cleaning and replacing filters

c) Considerations when replacing, updating, or upgrading equipment and facilities

Check	Specific initiatives
	<ul style="list-style-type: none"> Attach an inverter that can regulate rpm to electric devices likely to experience load fluctuations <p><i>Effects:</i> One metal products manufacturer replaced the damper feature on their zinc furnace dust collector fan with an inverter, reducing their annual electricity usage by 590MWh. (The dust collector ran an average of 17.6 hours a day on weekdays and 5.7 hours a day on weekends. It did not run on Sundays.) (Source: Research Council on Energy Conservation in Business <i>Energy Conservation for Small- and Medium-size Enterprises: Part I</i>) http://www.kansai.meti.go.jp/3-9enetai/jirei-seeds/hontai.pdf</p>
	<ul style="list-style-type: none"> Buy new or upgrade to high-efficiency energy supply equipment (e.g. air compressors, refrigeration equipment, boilers)
	<ul style="list-style-type: none"> Install total heat exchanger devices that can recover and reuse heat expelled outdoors during ventilation
	<ul style="list-style-type: none"> Introduce partial ventilation systems in specific areas <p><i>Effects:</i> One elderly care facility introduced a ventilation system in their kitchens that would reduce the institution's annual electricity usage by 300MWh (according to manufacturer calculations). This represents an annual savings of about 2.5 million yen. (Source: Research Council on Energy Conservation in Business <i>Energy Conservation for Small- and Medium-size Enterprises: Part II</i>) http://www.kansai.meti.go.jp/3-9enetai/jirei-seeds/jirei/part2/all.pdf</p>
	<ul style="list-style-type: none"> Install heat pump air conditioning units with a higher factor of performance (COP)
	<ul style="list-style-type: none"> Install high-efficiency air conditioning systems, such as those that run on natural gas
	<ul style="list-style-type: none"> Install air circulation devices such as ceiling blowers
	<ul style="list-style-type: none"> Insulate piping on hot waters equipment
	<ul style="list-style-type: none"> Replace old transformers with new high-efficiency transformers to reduce electricity loss
	<ul style="list-style-type: none"> Install a cogeneration system <p><i>Effects:</i> One special-care nursing home installed a gas cogeneration system when switching from kerosene to gas hot-water heaters, reducing annual electricity usage by 18,252kWh. This represents an annual savings of about 8 million yen. (Source: Research Council on Energy Conservation in Business <i>Energy Conservation for Small- and Medium-size Enterprises: Part I</i>) http://www.kansai.meti.go.jp/3-9enetai/jirei-seeds/hontai.pdf</p>
	<ul style="list-style-type: none"> Use district heating and cooling systems (teleheating)
	<ul style="list-style-type: none"> Install a collection system to recover heat generated by boilers or during garbage incineration <p><i>Effects:</i> One Japanese inn attached a heat exhaust collection system (including heat exchange devices) to the steam drains on their steam boiler (powered by fuel oil), resulting in a 54,519L reduction in heavy oil usage. This represents a savings of about 2.75 million yen. (Source: Research Council on Energy Conservation in Business <i>Energy Conservation for Small- and Medium-size Enterprises: Part III</i>) http://www.kansai.meti.go.jp/3-9enetai/jirei-seeds/jirei/part3/all.pdf</p>

Check	Specific initiatives
	<ul style="list-style-type: none"> • Install energy efficient office equipment, including copy machines, computers, and printers
	<ul style="list-style-type: none"> • Replace ballasts on fluorescent lighting equipment with inverters <i>Effects:</i> A 20-year-old office using 100 40W fluorescent lights consumed 102W of power per light (with copper ballasts). If these are replaced with 65W lights (Hf inverter with rating output), the office can reduce electricity consumption by 3.7kW $[(102W-65W) \times 100 = 3,700W \text{ or } 3.7kW]$. Multiplying this savings by 12 hours a day of use, 365 days a year, results in a total electricity savings of 16,206kW per year. (Source: The Energy Conservation Center, Japan <i>Energy Conservation in Office Buildings 2009</i>) http://www.eccj.or.jp/audit/buil_promo08/03_2.html#5
	<ul style="list-style-type: none"> • Switch to energy-saving lighting equipment, such as high-efficiency fluorescent bulbs <i>Effects:</i> Replacing 54W incandescent bulbs with equally bright 12W fluorescent bulbs translates to a reduction of approximately 17.9g of CO₂ emissions per hour per bulb $[(54W-12W) \times 0.425 \approx 17.9g]$ when using an emission factor of 0.425. (Calculated using the FY07 carbon dioxide emission factor for Tokyo Power provided by the national government.)
	<ul style="list-style-type: none"> • Install facilities which take note of midday sunlight, whether people are present, and other factors so that lights are only used when necessary
	<ul style="list-style-type: none"> • Install systems to automatically regulate what areas are lighted when and to what degree according to a preset schedule or timetable
	<ul style="list-style-type: none"> • Use insulation materials in ceilings, walls, and floors
	<ul style="list-style-type: none"> • Improve the temperature efficiency of the building by installing double-paned glass or double sash windows
	<ul style="list-style-type: none"> • Install heat-absorbing or heat-reflective glass to block solar heat

2) Conservation of resources

Check	Specific initiatives
	<ul style="list-style-type: none"> Use spray guns tailored to each product to minimize the amount of paint, coating, or cleaners used
	<ul style="list-style-type: none"> Consolidate holding tanks for paints, coating, and cleaners used during production processes to minimize usage
	<ul style="list-style-type: none"> Take steps to simplify paperwork used during meetings and work procedure manuals
	<ul style="list-style-type: none"> Store documents in electronic format using an internal LAN network or database
	<ul style="list-style-type: none"> Reduce the amount of paper used during meetings and conferences by making use of whiteboards or projection equipment
	<ul style="list-style-type: none"> When hard copies are needed, make sure to only print the minimum number of copies so that no extras are left over
	<ul style="list-style-type: none"> Always print double-sided copies or multiple pages per sheet to reduce paper usage
	<ul style="list-style-type: none"> Find ways to reuse old documents, posters, and calendars by using the back side or turning them into scratch paper
	<ul style="list-style-type: none"> Reuse old envelopes
	<ul style="list-style-type: none"> Double check printer and copier settings (number of copies, enlargement/shrinking) before making copies to prevent misprints. Always reset these features after use to prevent the next person from misprinting as well.

3) Water conservation and efficient water use

Check	Specific initiatives
	<ul style="list-style-type: none"> Construct equipment to recycle and reuse water used in production processes (use greywater)
	<ul style="list-style-type: none"> Recycle coolant water used in refrigeration devices or other equipment that produces cold water
	<ul style="list-style-type: none"> Adopt multistage (cascade) usage of rinse water used in painting, coating, or plating processes
	<ul style="list-style-type: none"> Adjust valves to optimize water volume and water pressure
	<ul style="list-style-type: none"> Manage the operation of cooling towers, devices that produce cold water, and similar equipment to ensure optimum water usage at all times
	<ul style="list-style-type: none"> Set up reservoirs or other equipment to collect and make use of rainwater
	<ul style="list-style-type: none"> Set up a seepage pit or other equipment to drain rainwater into the ground
	<ul style="list-style-type: none"> Enforce daily water conservation measures when washing hands, dishes, or the like
	<ul style="list-style-type: none"> Only wash company vehicles when absolutely necessary, and enforce water conservation measures when doing so
	<ul style="list-style-type: none"> Minimize water use in toilets by installing flushing noisemakers in toilet stalls or installing low-flow toilets
	<ul style="list-style-type: none"> Install low-flow attachments to faucets to minimize water usage
	<ul style="list-style-type: none"> Regularly inspect water pipes for leaks

4) Restricting or managing the use of chemical substances

Check	Specific initiatives
	<ul style="list-style-type: none"> • Work to control the outflow of volatile organic compounds (VOCs) by preventing volatilization of fuels, solvents, paints, and coatings (See: Japan Environmental Management Association for Industry <i>Controlling VOC Emissions</i>) http://www.jemai.or.jp/japanese/tech/voc/
	<ul style="list-style-type: none"> • Construct tanks and pipes carrying hazardous substances to prevent leakage or diffusion
	<ul style="list-style-type: none"> • Track the types, usage amounts, storage amount, usage methods, usage locations, and storage locations of hazardous chemical substances, and record and manage this information
	<ul style="list-style-type: none"> • Measure or estimate the amount of hazardous chemical substances emitted
	<ul style="list-style-type: none"> • Ensure consistent and thorough labeling of all hazardous substances
	<ul style="list-style-type: none"> • Use Material Safety Data Sheets (MSDS) to manage and communicate information on the safety of chemical substances
	<ul style="list-style-type: none"> • Ensure that hazardous substances are properly handled by regularly maintaining and inspecting the tanks and pipes that carry them
	<ul style="list-style-type: none"> • Carry out measures in line with the Pollutant Release and Transfer Register (PRTR) program to track chemical substance emissions
	<ul style="list-style-type: none"> • Cut back on the use of chemical herbicides and pesticides on company grounds

2. Business activity output

1) Restricting GHG emissions, preventing air pollution

a) Restricting greenhouse gas emissions

Check	Specific initiatives
	<ul style="list-style-type: none"> When purchasing products, try to select those that do not contain hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF6) whenever possible
	<ul style="list-style-type: none"> Always try to collect hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF6) properly when disposing products containing these chemicals.
	<ul style="list-style-type: none"> Prioritize the purchase and use of fuels with less environmental impact, such as city gas or kerosene
	<ul style="list-style-type: none"> Install fuel cell systems
	<ul style="list-style-type: none"> Install solar-powered facilities and equipment, use electricity created using solar energy <i>Effects:</i> Approximately 10,000kWh of electricity can be generated each year by installing a 10kWh solar power system (national average) (Source: Japan Photovoltaic Energy Association website) http://www.jpea.gr.jp/11basic06.html#g1
	<ul style="list-style-type: none"> Install solar water heaters and use the hot water generated for heating and washing <i>Effects:</i> According to Solar System Development Association figures, a single solar water heater (with a heat collection surface of 3.0m² collecting 1.65 million kcals) can save around 2,267kWh of electricity annually. (Source: Solar System Development Association website) http://www.ssda.or.jp/energy/merit.html
	<ul style="list-style-type: none"> Install micro hydroelectric power stations (generating less than 100kW) (Source: New Energy and Industrial Technology Development Association <i>Guide to Setting up Micro Hydroelectric Power Stations</i>) http://www.nedo.go.jp/kankobutsu/pamphlets/dounyuu/micro.pdf
	<ul style="list-style-type: none"> Purchase and use products and services that participate in carbon offsetting initiatives

b) Restricting the output of atmospheric pollutants

Check	Specific initiatives
	<ul style="list-style-type: none"> Adopt processes and equipment that generate minimal air pollution (such as low-NO_x incinerators)
	<ul style="list-style-type: none"> Take daily steps to prevent atmospheric pollution (such as controlled burning)
	<ul style="list-style-type: none"> Voluntarily set and comply with air pollution control standards that are stricter than those required by law
	<ul style="list-style-type: none"> Ensure that smoke is properly managed by regularly monitoring and measuring smoke output and inspecting smoke treatment equipment
	<ul style="list-style-type: none"> Collect and properly manage specific chlorofluorocarbons (CFCs)

2) Restricting waste output, recycling, proper disposal/treatment

a) Restricting the actual generation of waste

Check	Specific initiatives
	<ul style="list-style-type: none"> Thoroughly manage stock (e.g. optimize the number of items held in stock) to reduce wasted products due to quality deterioration or other problems
	<ul style="list-style-type: none"> Minimize the purchase and use of disposable items (such as paper cups, disposable lunch containers, etc.)
	<ul style="list-style-type: none"> Prioritize the use and purchase of products in returnable containers (beer bottles, 1.8L glass containers, etc.)
	<ul style="list-style-type: none"> Prioritize the use and purchase of reusable or recyclable products
	<ul style="list-style-type: none"> Promote long-term use of products by choosing refillable items and repairing existing equipment
	<ul style="list-style-type: none"> Purchase copy machines, computers, and printers made of recyclable materials
	<ul style="list-style-type: none"> Prioritize the purchase of items that use minimal packaging at the time of sale
	<ul style="list-style-type: none"> Take steps to reduce the amount of packaging materials used when delivering items
	<ul style="list-style-type: none"> Work to use office equipment as long as possible, always checking to see if it can be repaired before replacing

b) Recycling promotion

Check	Specific initiatives
	<ul style="list-style-type: none"> Collect scrap metal, paper, runoff, and sludge produced during manufacturing processes. Set up lines and equipment to reuse waste and other items.
	<ul style="list-style-type: none"> Always sort trash properly, setting up recycling bins as needed to separate and collect paper, cans, glass bottles, plastic, batteries, and other recyclables
	<ul style="list-style-type: none"> Only shred confidential documents, and recycle shredded paper
	<ul style="list-style-type: none"> Set up a collection procedure for toner cartridges for copiers and printers and recycle when possible
	<ul style="list-style-type: none"> Reduce the volume of garbage generated with compressors or by other means
	<ul style="list-style-type: none"> Check to make sure that contracted waste treatment companies are recycling collected waste materials properly
	<ul style="list-style-type: none"> Compost organic waste (such as cafeteria leftovers) and return it to the soil or use it as fertilizer
	<ul style="list-style-type: none"> Set up a procedure for recycling used cooking oil, or reuse it (e.g. as a soap ingredient)

c) Proper disposal of industrial waste

Check	Specific initiatives
	<ul style="list-style-type: none"> Properly manage waste using a waste management sheet (manifest)
	<ul style="list-style-type: none"> Go to the final waste treatment site regularly to check it firsthand
	<ul style="list-style-type: none"> To avoid generating methane, limit the amount of organic waste sent to the landfill by, separating/recycling food scraps or properly incinerating them whenever possible
	<ul style="list-style-type: none"> When incinerating waste, check it thoroughly to ensure that non-burnable PVC or other materials are not mixed in. Use smoke treatment and other measures to protect the local environment.
	<ul style="list-style-type: none"> Carefully manage infectious waste, waste used in testing, etc. by recording information on it, creating a manifest, and making sure it is disposed of properly
	<ul style="list-style-type: none"> Construct facilities to collect and reuse runoff

3) Wastewater treatment

Check	Specific initiatives
	<ul style="list-style-type: none"> Use processes and equipment that minimize water pollution (such as collecting and reusing runoff)
	<ul style="list-style-type: none"> Set up appropriate wastewater treatment facilities
	<ul style="list-style-type: none"> When draining wastewater into a closed body of water (such as a lake or bay), take steps to remove nitrogen and phosphorous
	<ul style="list-style-type: none"> Remove hazardous substances and organic pollution (such as food scraps) from wastewater whenever possible
	<ul style="list-style-type: none"> Voluntarily set and comply with water pollution control standards that are stricter than those required by law
	<ul style="list-style-type: none"> Ensure that wastewater is properly managed by regularly monitoring and measuring wastewater and inspecting wastewater treatment equipment

4) Other initiatives to protect environmental living conditions

Check	Specific initiatives
	<ul style="list-style-type: none"> Position outflow points to prevent noxious smells from entering the environment
	<ul style="list-style-type: none"> Prevent noise and vibration by using low-vibration equipment and constructing/operating noise- and vibration-absorbing facilities; monitor and measure noise and vibration on a daily basis

3. Products and services

1) Green purchasing (buying/using environmentally friendly products and materials)

Check	Specific initiatives
	<ul style="list-style-type: none"> • Make purchasing environmentally friendly items part of company policy, create purchasing standards, create a list of green products, and make purchases based on that list
	<ul style="list-style-type: none"> • Prioritize the purchase of products certified with environmental labels (Source: Ministry of the Environment <i>Database of Environmental Labels (Symbol Index)</i>) http://www.env.go.jp/policy/hozen/green/ecolabel/f01.html
	<ul style="list-style-type: none"> • Purchase products that comply with energy efficiency standards (Source: The Energy Conservation Center, Japan <i>Energy efficient product information site</i>) http://www.eccj.or.jp/cgi-bin/real-catalog/index.php
	<ul style="list-style-type: none"> • Prioritize the purchase and use of products made from recycled materials
	<ul style="list-style-type: none"> • Actively purchase and use products made from untapped natural resources or lumber from thinning
	<ul style="list-style-type: none"> • Prioritize the purchase and use of unbleached products (such as clothing) and other items with minimal environmental impact (such as products that use water-based paints)
	<ul style="list-style-type: none"> • Prioritize the purchase and use of products designed for easy repair, part replacement, part reuse, or material refills
	<ul style="list-style-type: none"> • Actively purchase low flow flush toilets and other household appliances
	<ul style="list-style-type: none"> • Switch to copier paper, computer paper, forms, office stationary, printed material, pamphlets, toilet paper, business cards and other paper products made from recycled paper or untapped fibrous resources
	<ul style="list-style-type: none"> • Make sure wood product suppliers are taking proper environmental measures, such as replanting trees, planting new trees, or participating in environmental restoration projects
	<ul style="list-style-type: none"> • Switch to low-pollution company vehicles, such as hybrids, highly fuel efficient vehicles, certified low-emissions vehicles, electric vehicles, or vehicles that run on natural gas

2) Offering environmentally friendly products and services
 a) Design and planning initiatives

Check	Specific initiatives
	<ul style="list-style-type: none"> • Aim to minimize resource usage by developing more compact, lightweight products while retaining functionality
	<ul style="list-style-type: none"> • Create longer-lasting products
	<ul style="list-style-type: none"> • Reduce the amount of energy products use during operation
	<ul style="list-style-type: none"> • Take steps to use recycled materials
	<ul style="list-style-type: none"> • Optimize model changes to keep waste to a minimum
	<ul style="list-style-type: none"> • Select materials that are easily recycled and design products with a minimum number of parts, screws, or other fasteners to make disassembly easier
	<ul style="list-style-type: none"> • Minimize the amount of hazardous chemicals used in products
	<ul style="list-style-type: none"> • Reduce the use of chlorine-based organic solvents by replacing them with alternative substances
	<ul style="list-style-type: none"> • Increase efficiency by modifying or correcting press methods to reduce defects and other forms of waste
	<ul style="list-style-type: none"> • Work to reduce excess material scraps by changing the specifications on purchased raw materials
	<ul style="list-style-type: none"> • Analyze the number and type of items produced to level production planning
	<ul style="list-style-type: none"> • Create a checklist of possible environmental burdens to use with products produced in-house and parts purchased from other companies
	<ul style="list-style-type: none"> • When developing new products or releasing new models, record environmental burden measurements and conduct product assessments (including an evaluation of how easy it will be to properly dispose of the product and a life cycle assessment indicating the environmental burden generated at each stage, from consumption during production through disposal)
	<ul style="list-style-type: none"> • Carry out systematic product assessments of existing products as well

b) Delivery and transport initiatives

Check	Specific initiatives
	<ul style="list-style-type: none"> Simplify packaging and look for ways to eliminate redundant packaging
	<ul style="list-style-type: none"> Use reusable pallets and returnable boxes when transporting products and other materials
	<ul style="list-style-type: none"> Enforce environmentally friendly driving practices such as Eco-Drive (e.g. avoiding sudden starts and acceleration, refraining from revving the engine, and turning off the engine when stopped) (Source: Eco-Drive Promotion Network Ten Eco-Drive Recommendations) http://www.mlit.go.jp/kisha/kisha06/01/010609/01.pdf
	<ul style="list-style-type: none"> Regularly check tire pressure to ensure that it is at an optimum level (level recommended by the manufacturer)
	<ul style="list-style-type: none"> Keep vehicles properly maintained to keep emissions and noise to a minimum
	<ul style="list-style-type: none"> Provide shared company bicycles and have employees use them avoid driving to nearby appointments
	<ul style="list-style-type: none"> Use public transportation to reduce the use of company vehicles

c) Collecting and recycling products

Check	Specific initiatives
	<ul style="list-style-type: none"> Collect and recycle used products and packaging
	<ul style="list-style-type: none"> Provide information to consumers on how to reduce the environmental burden of products, such as ways to prevent leakage of chlorofluorocarbons (CFCs)
	<ul style="list-style-type: none"> Recover and recycle consumable products by setting up collection boxes in stores

d) Selling and providing information about environmentally friendly products

Check	Specific initiatives
	<ul style="list-style-type: none"> Make a concerted effort to sell products that are made from recycled materials, recyclable, reusable, energy efficient, use less resources, use less packaging, and are certified with an environmental label
	<ul style="list-style-type: none"> Set sales targets for the above items and actively promote them
	<ul style="list-style-type: none"> Voluntarily keep repair parts available for extended periods of time
	<ul style="list-style-type: none"> Promote the use of reusable shopping bags at retail outlets
	<ul style="list-style-type: none"> Sell items individually or offer refills (sell by weight or volume)
	<ul style="list-style-type: none"> Actively provide consumers with information on environmentally friendly products
	<ul style="list-style-type: none"> Print the environmental burden of using or disposing of products in product catalogs
	<ul style="list-style-type: none"> Display environmentally friendly products or product assessment results in stores
	<ul style="list-style-type: none"> Comply with outside requests for data on the environmental burden of products
	<ul style="list-style-type: none"> Display the Eco Mark or your institution's own environmental label or commitment statement on products and brochures

4. Miscellaneous

1) Initiatives to preserve biodiversity and promote sustainable use

Check	Specific initiatives
	<ul style="list-style-type: none"> Know where all purchased raw materials (wood, fishery products, agricultural products, minerals, etc.) are produced
	<ul style="list-style-type: none"> Collect information on raw materials to ensure that they are not being produced or mined in a way that is harmful to biodiversity in the local environment, and that the rights of native peoples are being respected
	<ul style="list-style-type: none"> Make an effort to purchase only certified raw materials (e.g. materials produced/harvested in certified forests or fisheries)
	<ul style="list-style-type: none"> Actively use local natural resources and promote “local production for local consumption” measures
	<ul style="list-style-type: none"> Make the impact of business activities on biodiversity publically available
	<ul style="list-style-type: none"> Consider the impact of business activities on the local environment, and promote activities to preserve the plants and animals living near office buildings (e.g. setting up a habitat area)

2) Environmental communication and social contribution

a) Environmental communication

Check	Specific initiatives
	<ul style="list-style-type: none"> Make publically available the major environmental impact of your business activities, key environmental targets, and contact information for the person in charge of environmental issues at your institution
	<ul style="list-style-type: none"> Provide environmental information to consumers and hold educational activities
	<ul style="list-style-type: none"> Set up a contact point to take outside requests for information or publications
	<ul style="list-style-type: none"> Publish environmental information on the institution’s website
	<ul style="list-style-type: none"> Regularly solicit feedback and reflect it when implementing environmental initiatives
	<ul style="list-style-type: none"> Set up a contact point to receive feedback from concerned parties outside the company

b) Social contribution

Check	Specific initiatives
	<ul style="list-style-type: none"> Set up an environmental fund or environmental group, or support existing ones (e.g. by deploying personnel, contributing money, donating a portion of employee salaries, or helping with publicity efforts)
	<ul style="list-style-type: none"> Set up a program to match environmental donations (e.g. from employee labor unions)
	<ul style="list-style-type: none"> Actively participate in and support local volunteer efforts
	<ul style="list-style-type: none"> Get involved with local groups and organizations conducting environmental research or activities
	<ul style="list-style-type: none"> Set up an environmental award program
	<ul style="list-style-type: none"> Support environmental research organizations (e.g. by holding environmental courses at universities)
	<ul style="list-style-type: none"> Make worksites, walls, and rooftops greener (this will also contribute to cleaner air and a milder urban climate)

3) Environmentally friendly expansion, remodeling, or demolition of buildings and other structures owned or operated by the institution

a) Contracting or working with architects and builders (building firms or construction companies)

Check	Specific initiatives
	<ul style="list-style-type: none"> • Use building materials with low environmental impact, and request optimum use of building materials (e.g., minimize the use of wood in plywood frames and the like, actively use blast furnace slag cement, Eco-Cement, and recycled materials)
	<ul style="list-style-type: none"> • Minimize the effect of buildings on the surrounding natural environment (plants and animals), or request that structures be designed in a way that actually benefits the environment

b) Measures to prevent or reduce the environmental effects of existing buildings

Check	Specific initiatives
	<ul style="list-style-type: none"> • Inspect aging buildings and monitor their operation; look for ways to improve them or add features to make them more environmentally friendly
	<ul style="list-style-type: none"> • Work to improve the durability of existing buildings
	<ul style="list-style-type: none"> • Maintain wastewater facilities and control airborne asbestos (particularly by removing it prior to demolition)

Major groups carrying out environmentally friendly business activities

There are many websites available that provide information on environmental initiatives. They include websites offering detailed explanations and best practices from institutions actually carrying out environmental measures and websites from environmental groups. The following is a partial listing of these sites. Institutions are encouraged to consult them for additional ideas and information.

General

- Ministry of the Environment: <http://www.env.go.jp/>
- Ministry of Economy, Trade, and Industry: <http://www.meti.go.jp/>
- Agency for Natural Resources and Energy: <http://www.enecho.meti.go.jp/>
- Ministry of Land, Infrastructure, Transport, and Tourism: <http://www.mlit.go.jp/>
- Ministry of Agriculture, Forestry, and Fisheries: <http://www.maff.go.jp/>

Energy

- The Energy Conservation Center, Japan: <http://www.eccj.or.jp/>
- New Energy and Industrial Technology Development Organization (NEDO): <http://www.nedo.go.jp/>
- New Energy Foundation: <http://www.nef.or.jp/>
- Global Environment Centre Foundation: <http://gec.jp/jp/index.html>
- Kansai Bureau of Economy, Trade, and Industry, Kansai Energy Business Platform: <http://www.kansai.meti.go.jp/3-9enetai/jirei-seeds/index.html>

Waste and recycling

- Clean Japan Center: <http://www.cjc.or.jp/>
- Japan Industrial Waste Management Foundation: <http://www.sanpainet.or.jp/>
- The Japan Containers And Packaging Recycling Association: <http://www.jcptra.or.jp/>

Chemical substances

- PRTR Information Plaza (MOE): <http://www.env.go.jp/chemi/prtr/risk0.html>
- National Institute of Technology and Evaluation: <http://www.prtr.nite.go.jp/prtr/prtr.html>
- Japan Environmental Management Association for Industry: http://www.jemai.or.jp/CACHE/index_index.cfm

Green purchasing

- Green Purchasing Network: <http://www.gpn.jp/>
- Japan Environment Association Eco Mark Office: <http://www.ecomark.jp/>
- Eco-friendly and Recycled Materials Navigator: <http://recycle.kensetu-navi.com/>
- Environmental Label Database (MOE): <http://www.env.go.jp/policy/hozen/green/ecolabel/index.html>
- Organization for the Promotion of Low Emission Vehicles: http://www.levo.or.jp/home_j.html

Eco-Drive

- Eco-Drive Promotion Network: <http://www.ecodrive.jp/>

Environmental laws and regulations

- Database of Environmental Laws (MOE): <http://www.env.go.jp/hourei/>

Inquire

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