

Carbon Footprint Activities in Japan - PCR Approach -



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Today's Topics

1. Background of the Carbon Footprint of Products (CFP) and Activities in 2008

2. Life Cycle Assessment (LCA) and CFP (TS Q 0010)

3. Activities on CFP in 2009

4. ISO-14067 and Others

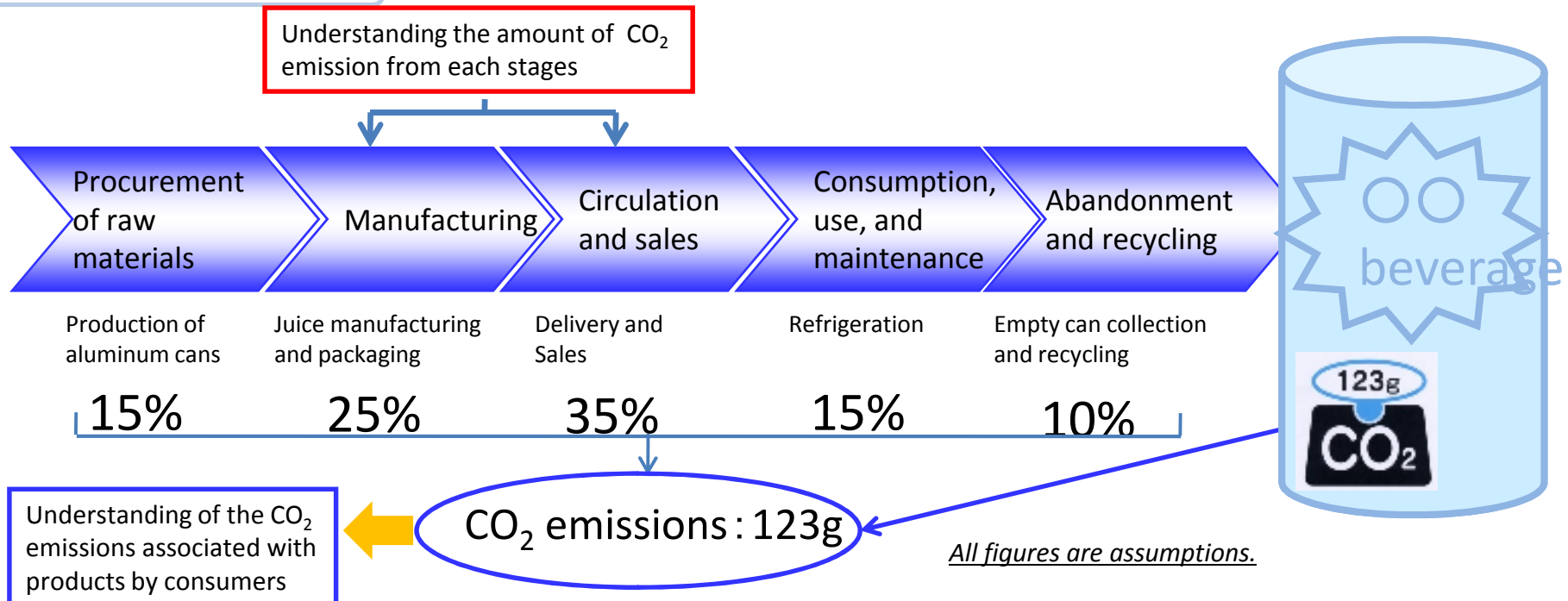
5. Consumer's Acceptance

What is Carbon Footprint of Products?

«Carbon Footprint»

- Indicator of the greenhouse gases emitted throughout the life cycle of a product (from the extraction of natural resources to disposal).
- By providing information labels on products (visualization), companies can appeal to consumers their efforts to combat global warming.
- Promote reduction of corporate CO₂ emission throughout the supply chain.

➤ Example of canned beverage



CFP History in the World

- 2006 Dec.; Tesco's Declaration
- 2007 Jan.; Walker's Chips with CFP in UK
- 2007 June; ISO/TC207/SC7(Beijing) Started Discussion
- 2008 June; "Japan As a Low-Carbon Society"
METI started the pilot project
June; SC7 (Bogota) NWIP, Endorsed in Nov.
Dec.; "Eco-Product 2008" CFPs of 30 companies
- 2009 Jan.; SC7-WG2(Kota Kinabal), June;(Cairo), Oct.(Vienna
Oct.; 3 products into the market
Dec.; "Eco-Products2009" CFPs of 27 Companies
- 2010 Feb.; SC7-WG2(Tokyo)

Japan: Action Plan for Achieving a Low-carbon Society

- On July 29th, 2008, the Japanese government decided on an action plan for the creation of a low-carbon society, outlining the country's goal of transitioning to such a society, including specific measures.

Action Plan for Achieving a Low-carbon Society

1. Japan's long term and mid term goal.
2. Developing innovative technologies while disseminating existing advanced technologies .
 - installing solar power, zero-emission/low-energy electronics
 - promoting energy-efficient housing and offices etc.
3. Framework-building to move the entire country to lower carbon emissions .
 - emission trading, tax system reform, visualization
4. Support for regional and citizen's initiatives.
 - reducing carbon through agriculture, forestry and others
 - urging changes to business styles and lifestyles

Source: Action Plan for Achieving a Low-carbon Society

Japan: Carbon Footprint Project in FY2008

《FY2008's Project Content》

- Establish Basic Guidelines for the carbon footprint system
 - Method for calculation and labeling of carbon footprint
 - Identify tasks for development of carbon footprint system
- Development of Guide of Establishing Product Category Rules

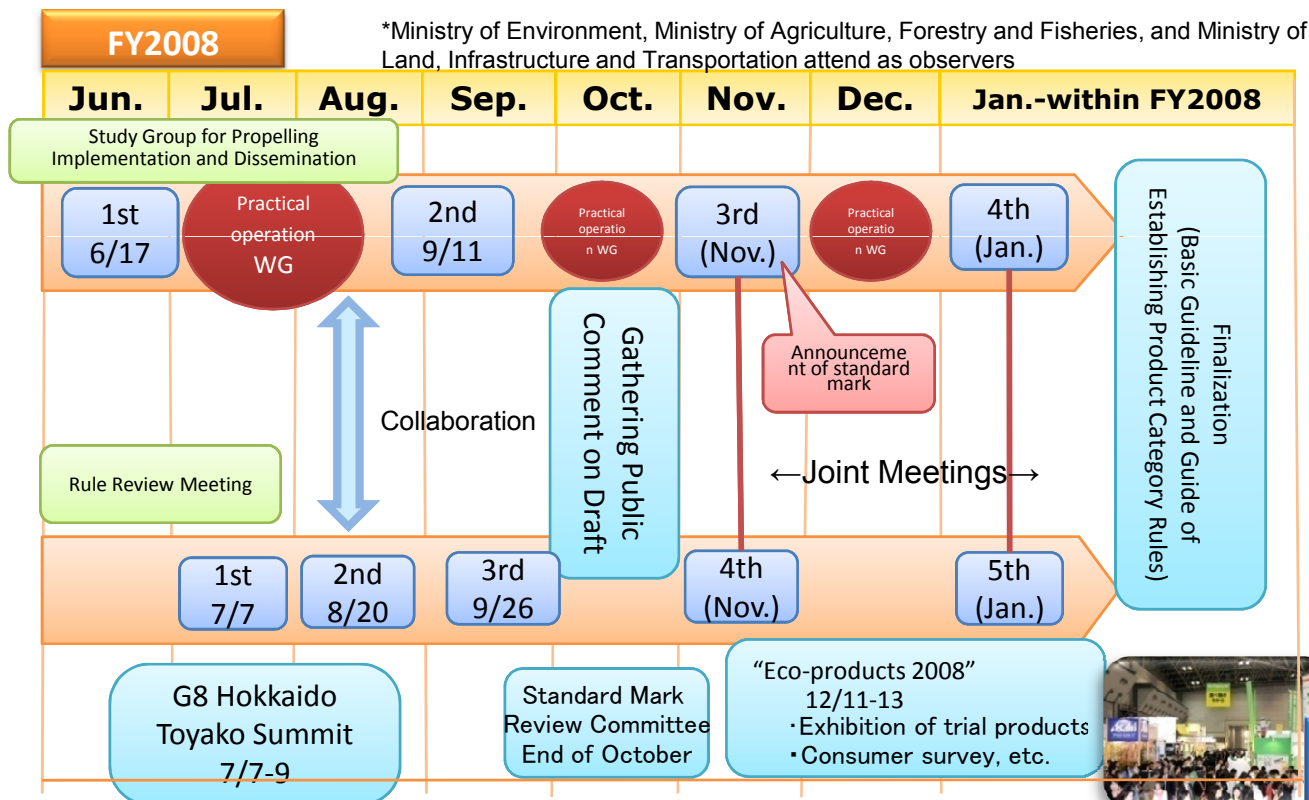
《Participants: 30 companies》

Retail

- AEON
- Seven & i Holdings
- Lawson
- Marui
- FamilyMart
- Seiyu
- JCCU (Co-op)
- UNY
- CGC

Consumer goods manufacturers

- Sapporo
- KAGOME
- Calbee
- Nissin Food
- NISSIN SEIFUN
- KIBUN FOOD CHEMIFA
- Lion
- Panasonic
- Toshiba Lighting & Technology
- KOKUYO Furniture
- KOKUYO S&T
- KOKUYO Store Creation
- Dai Nippon Printing
- Nihon Tetra Pak
- TOYO SEIKAN
- CHUO KAGAKU
- Nestle
- AJINOMOTO
- Nippon Meat Packers
- KAO
- Unicharm



FY2009~FY2010

- Expansion of trial products
- Distribution in the market
- Refinement of guidelines

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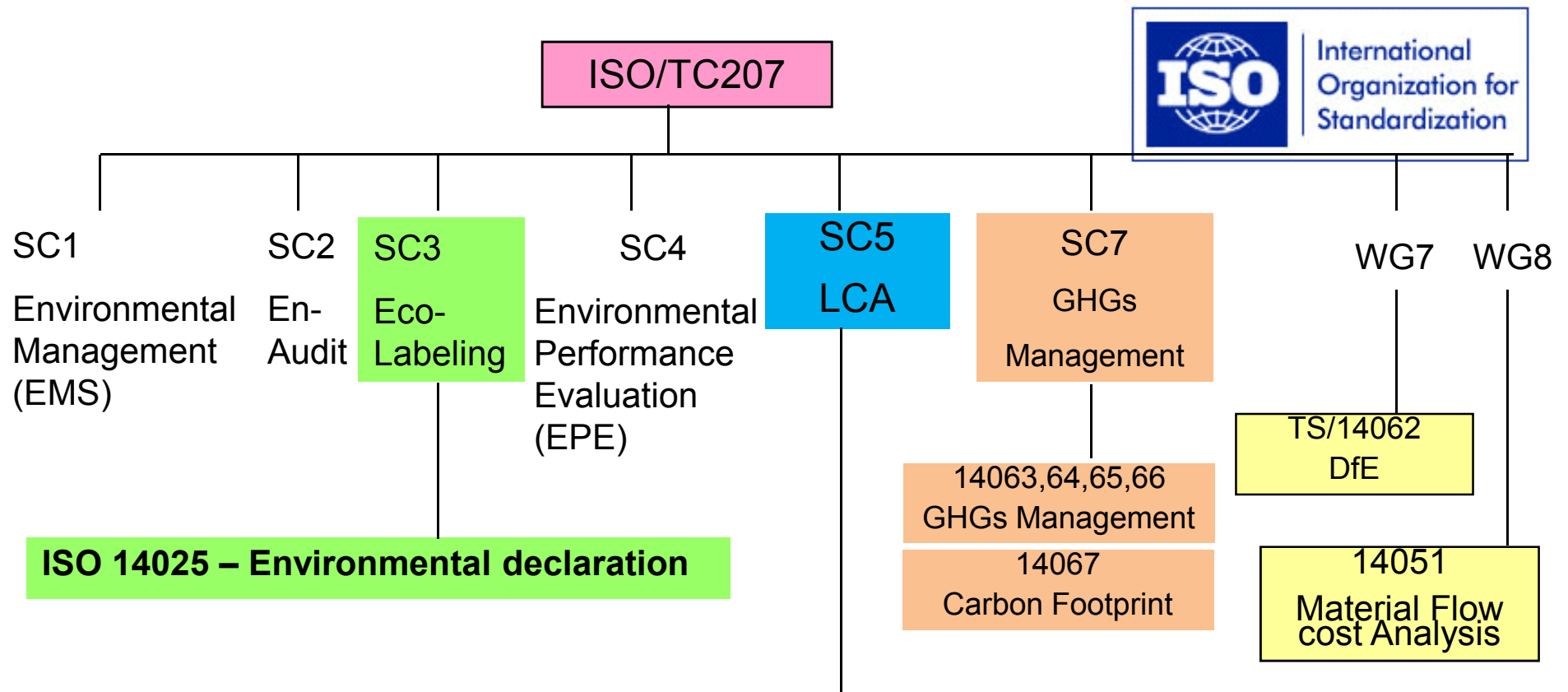
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ISO14000 Series and relevant standards



ISO 14040 - Principles and Framework

ISO 14044 - Requirements and Guideline

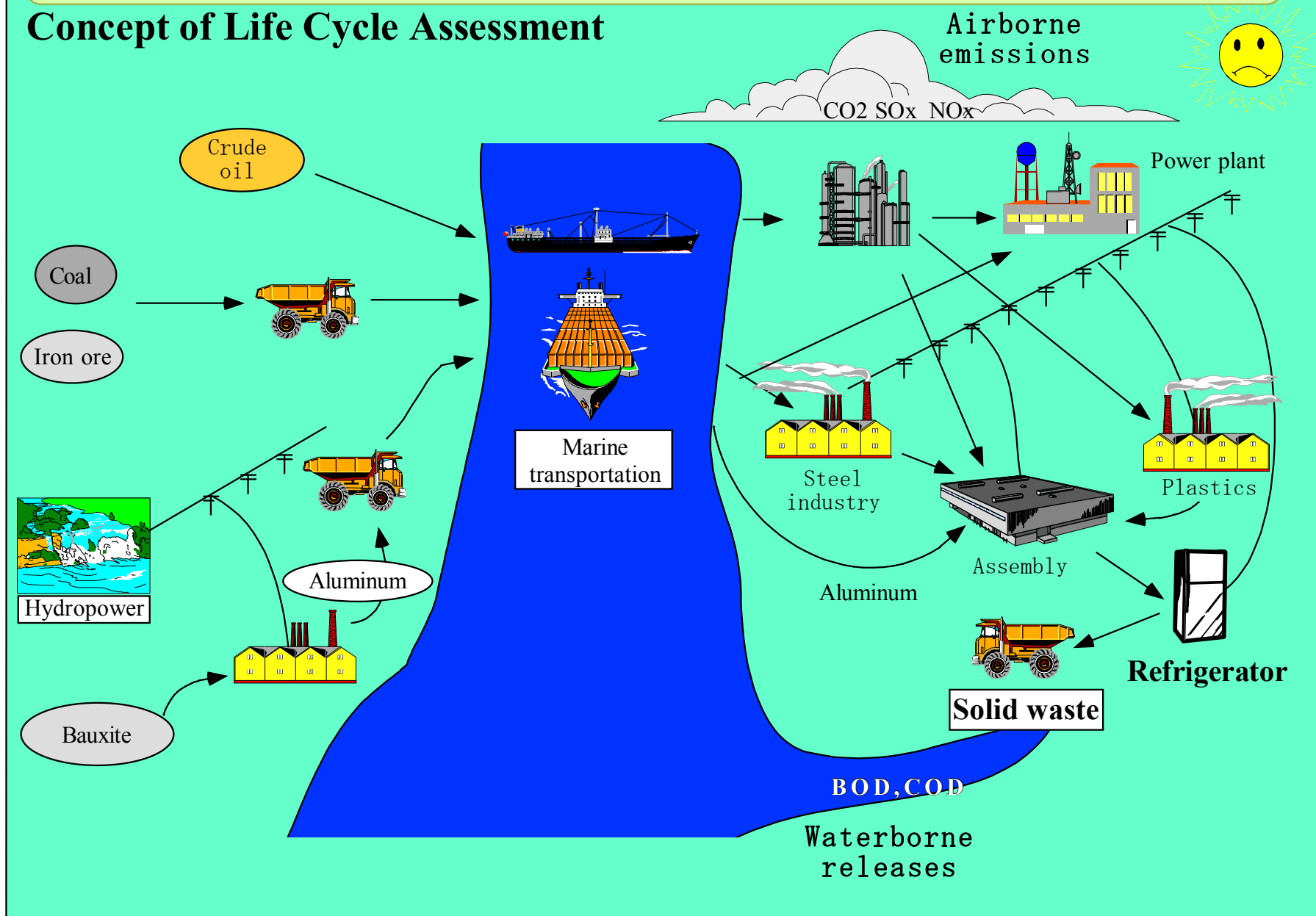
TR 14047 Illustrative examples on how to apply ISO 14042 - Life cycle assessment - Life cycle impact assessment

TS 14048-Data Documentation Format

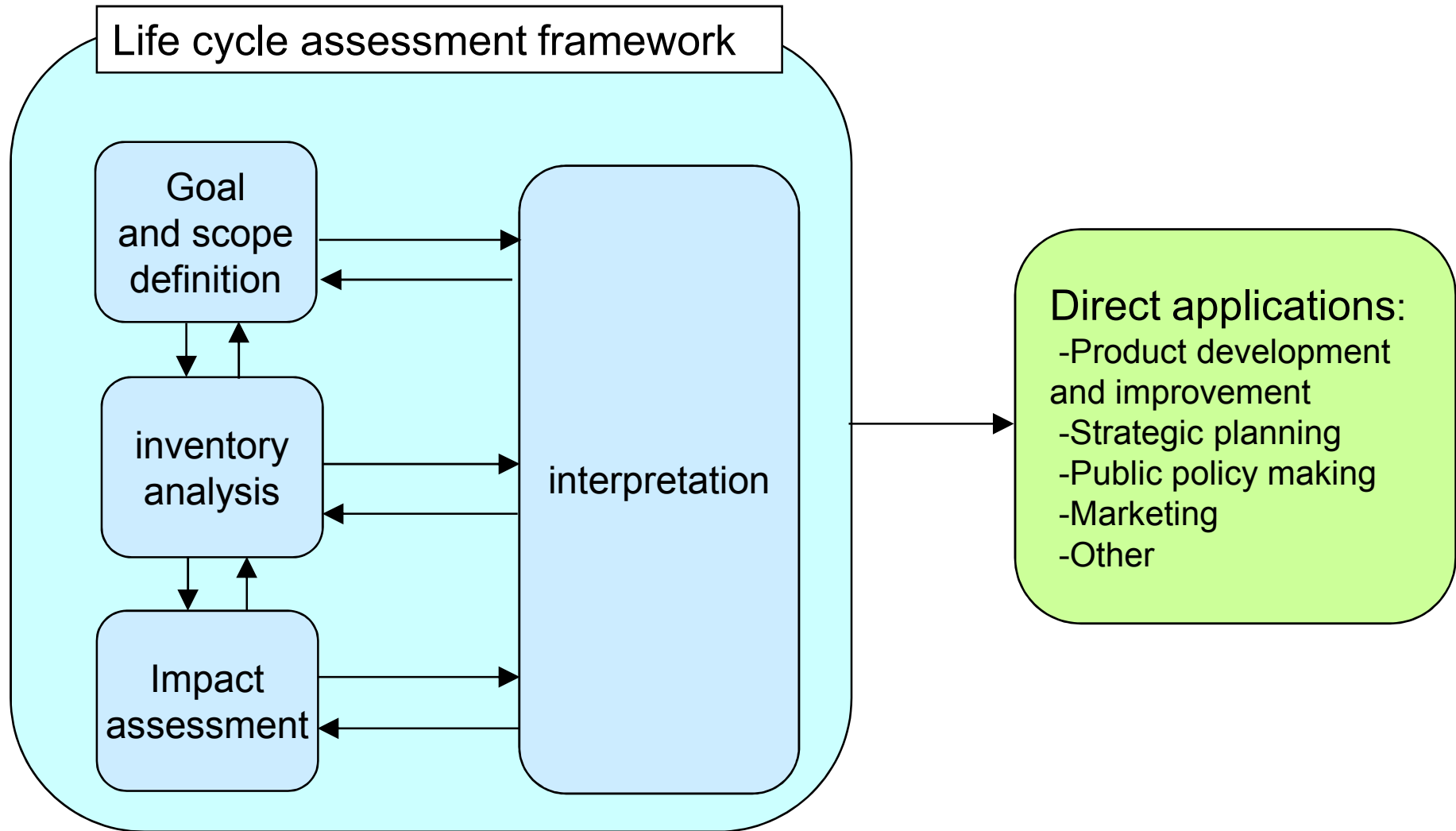
TR 14049 - Technical Report on “Illustrative examples on how to apply goal and scope definition and inventory analysis”

Concept of Life Cycle Assessment

Concept of Life Cycle Assessment

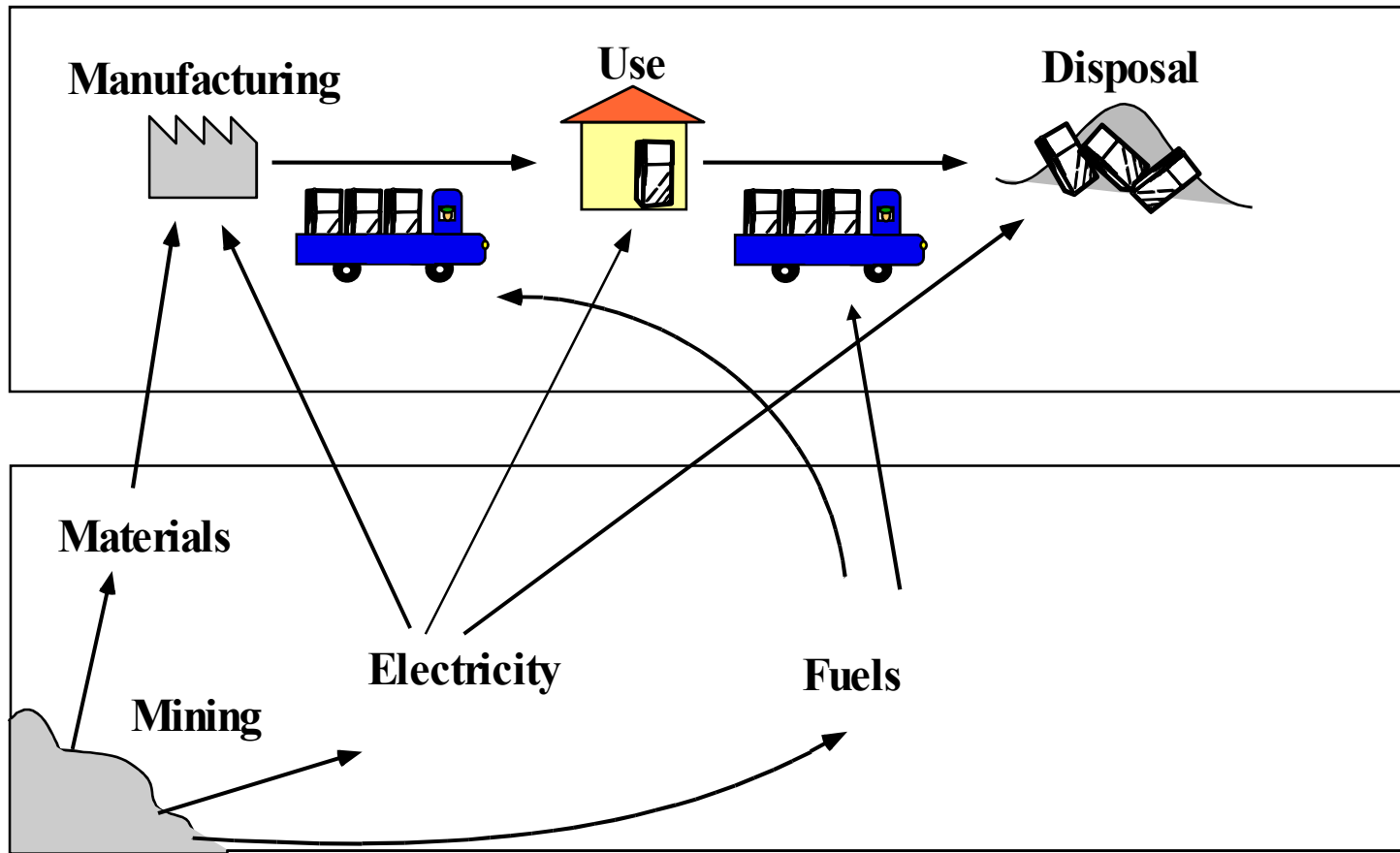


Phases of LCA Study (From ISO 14040)



Life Cycle Inventory Analysis

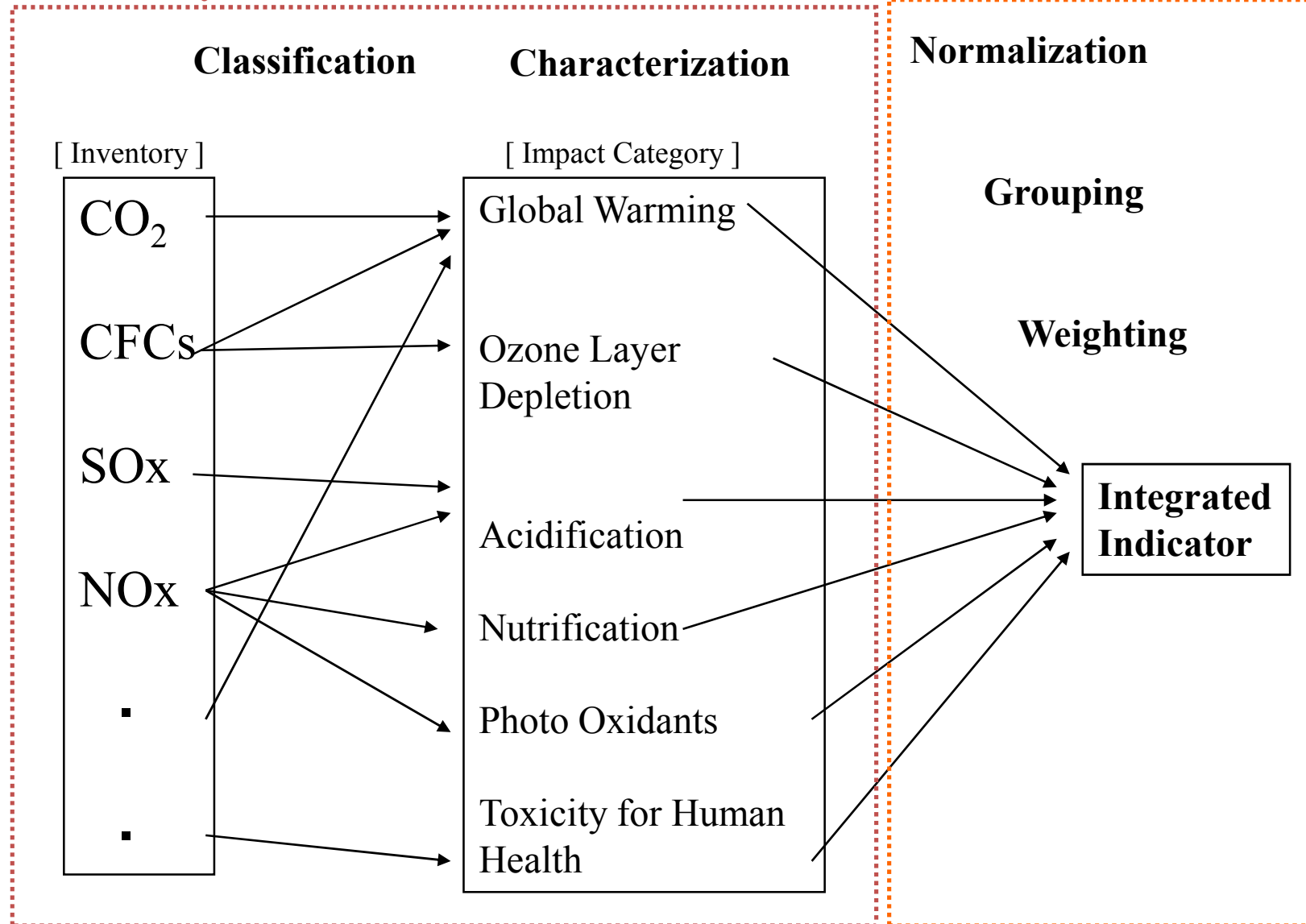
Foreground Data



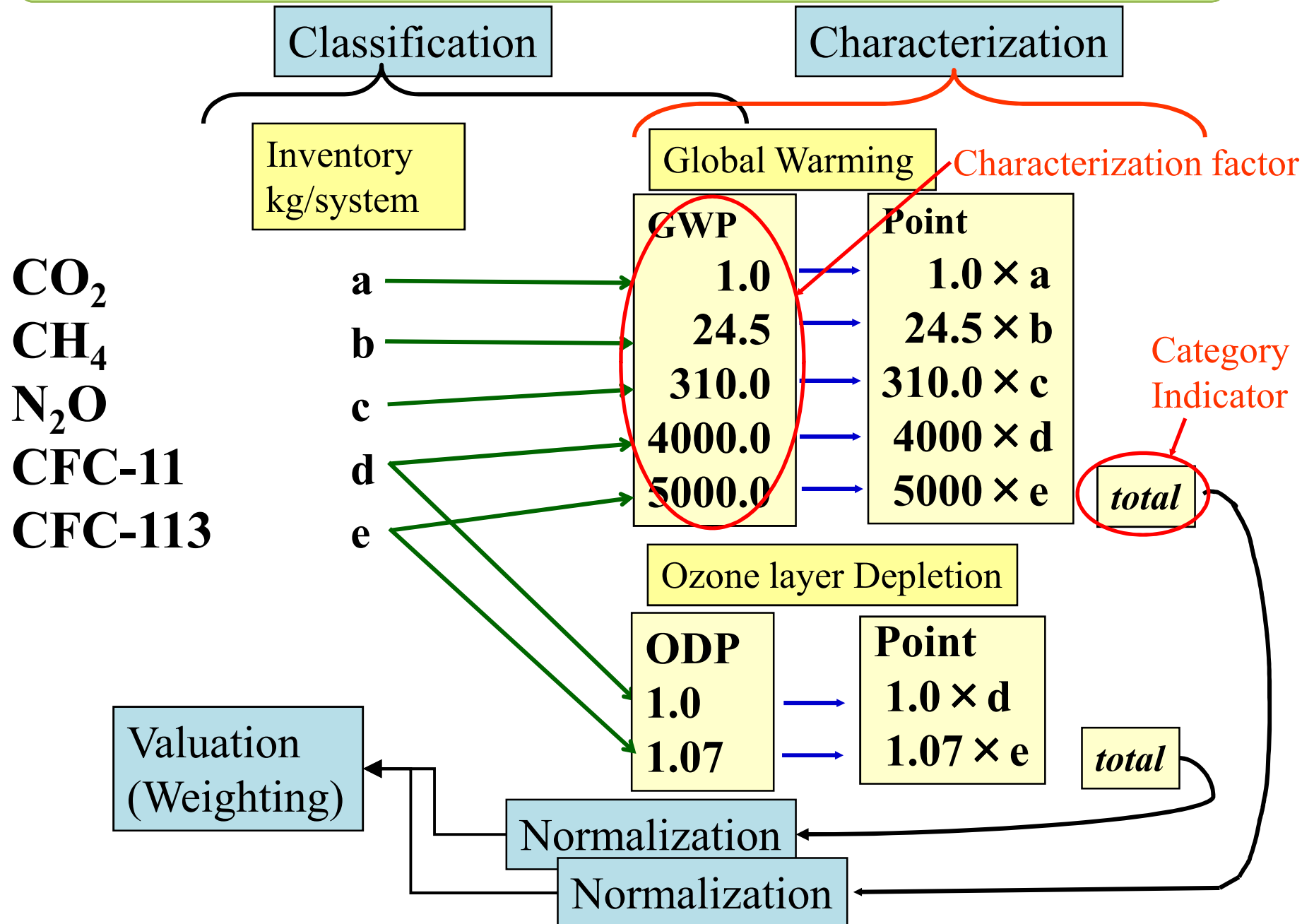
Back ground Data

Life Cycle Impact Assessment

Mandatory Elements



Life Cycle Impact Assessment



Difficulty in conducting CFP

● We cannot collect all data associated to the Product Life Cycle

→ consider “cut-off rule”

Specification of the amount of material or energy flow or the level of environment significance associated with unit process or product system to be excluded from a study.

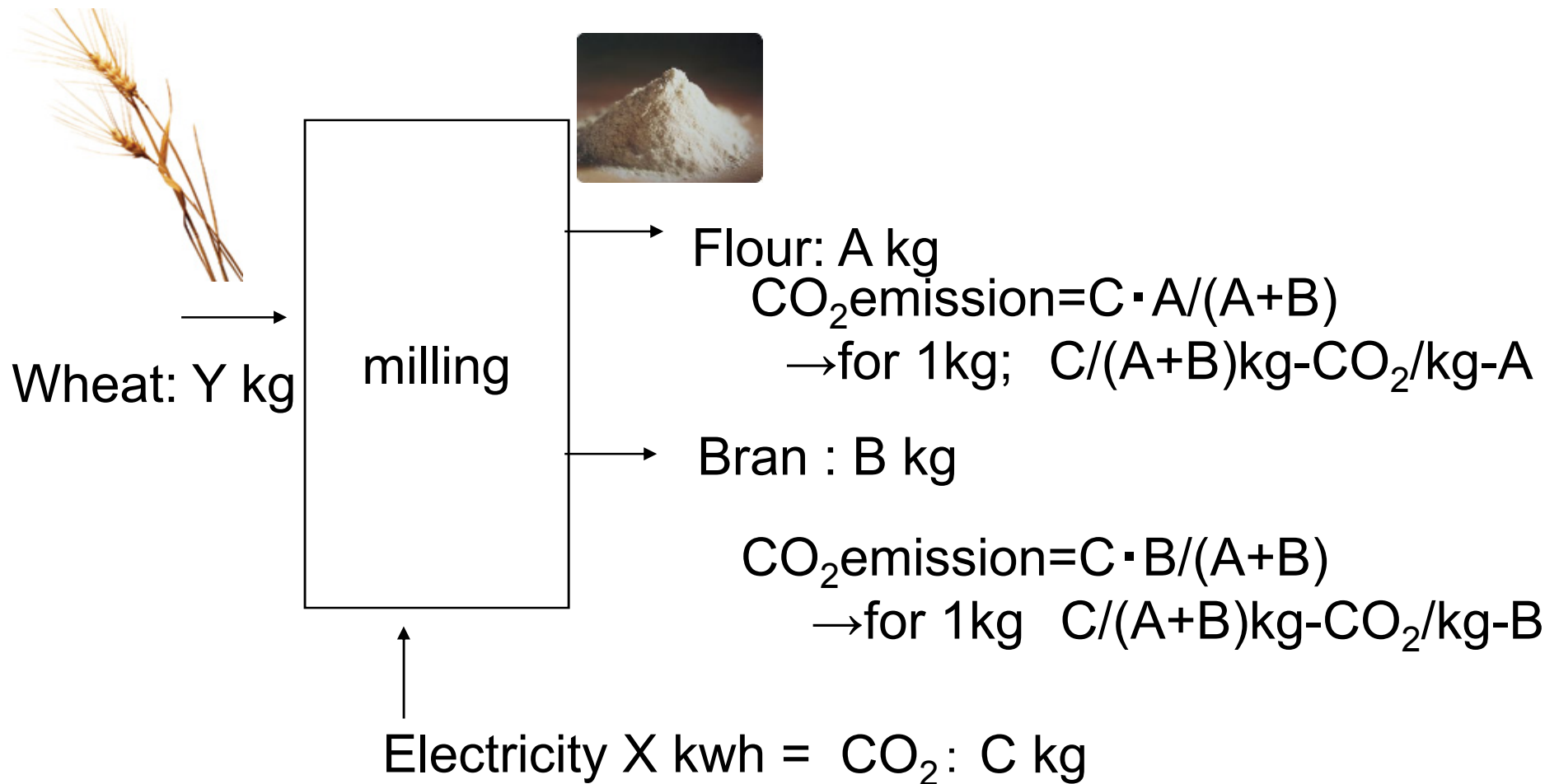
For example, calculate CFP up to product's 95%-mass proportion selecting unit process by its significance and divide it 0.95 to make it 100%.

→ Data collection

Collect the primary data within the production site as practically as possible, and use the secondary data for materials supplied from outside the company.

Allocation – Mass basis

same CO₂ kg/kg-product



PCR Approach (1)

- Environment and/or greenhouse gas performances are different between each product category. This shall be considered in the calculation rules.
- PCR makes CFP data comparable, by setting LCA study requirements for the same product category.

PCR Approach (2)

- Why we need PCR?
 - For external use of LCA/CFP study result, the scope and rule of the calculation shall be the same.
 - Common and harmonized calculation rules shall be established for fair comparison.

Definition of PCR

- set of specific rules, requirements and guidelines for developing **Type III environmental declarations** (3.2) for one or more **product categories** (3.12)

» -cited from ISO 14025

- PCR=specific transparent rules for environmental label/claim reviewed by third party to meet the principle of comparability and to avoid development of several rules by several companies.
- PCR≠ detailed rules for LCA

What Should CF-PCR Include?

- ISO14025 requirement should be applied

- PCR contents(6.7.1)

- a) product category definition and description (e.g. function, technical performance and use);
 - b) goal and scope definition for the LCA of the product, according to the ISO 14040 series,
 - c) inventory analysis,
 - (omitted)
 - i) instructions on the content and format of the Type III environmental declaration
 - j) information on which stages are not considered, if the declaration is not based on an LCA covering all life cycle stages;
 - k) period of validity.

- Requirements of comparability(6.7.2)

- Comparability of different declarations can be achieved when the contents of conditions in PCR are met.

- Requirements of declaration content(7.2.1)

- statement that environmental declarations from different programmes may not be comparable;

Because different programs/companies are likely to set out differently defined PCRs.

- Additional requirement should be discussed for ISO14067-2.

Structure of Rules for Carbon Footprint of Products System in Japan

Basic concept

LCA: ISO 14040 and ISO 14044

Environmental labels and declaration: ISO 14025

Japanese Pilot Project

“Basic Guideline of the Carbon Footprint of Products”

The Guideline provides basic frameworks (General Principle) for GHG calculation, communication methods and other schemes regarding CFP, attaching importance to the concept of PCR

“Guide of Establishing Product Category Rules” (complement rules)

The Guide provides principles, criteria & process for establishing PCRs
in accordance with the Guideline

To be issued
as TS* / JIS*

Contribute to
ISO
discussions

Organizations/Industry
Circles; Establish
PCRs according to the
Guideline & the Guide

PCR
A

PCR
B

PCR
C

PCR
D

PCR
E

Under the same PCR category,
products/service are comparable.

Organization;

Calculates Carbon Footprint of Product and put label on the product according to PCR

*JIS; Japanese Industrial Standard (nationwide standard) ,

*TS; Technical Specification published without a sufficient consensus to be established as a JIS but recognized to have such potential in the future.

Outline of “Basic Guideline of the Carbon Footprint of Products”

4.2* Calculation Coverage (stages)

- a)Raw material acquisition,
- b)Production,
- c)Distribution/selling,
- d)Use/maintenance control and
- e)Disposal/recycling

“” paragraph number of the Guideline,
please see the corresponding paragraph
of the Guideline for more details.*

Take flexible steps according to a characteristic of the individual product.
Calculation coverage in each stages should be defined in the PCR

Outline of “Basic Guideline of the Carbon Footprint of Products”

4.3 Calculation Method

4.3.1 Basic Rules relating to Calculation

$$\text{GHG emissions} = \sum (\text{activity}_i \times \text{GHG emission factor}_i)$$

Where i stands for a process.

Calculate GHG emissions of products with primary data in principle.

Using the secondary data should be limited to the case where it is difficult to obtain primary data.

4.3.2 Allocation

Allocation method is to be established when preparing PCRs according to a product and process characteristic.

4.3.3 Cut-off Criteria

A cut-off criteria is to be established in PCRs with fair discussions taken into consideration.

4.3.4 Criteria relating to Acquisition from two or more Suppliers

The data should be collected from all suppliers in principle.

Where it is difficult to do so, the primary data collected from a principal supplier may be used as another supplier's secondary data subject to some criteria.

Outline of “Basic Guideline of the Carbon Footprint of Products”

4.4 Product Category Rules (PCR)

Images by Item as Described in PCRs

Major Item (example)	Minor Item (example)
Applicable product definition	Product type and Calculation coverage (life cycle stages and system boundaries)
Each life cycle stage setting	Data items collected in each stage, Allocation method, Cut-off criteria, Disposal/recycling principles (scenario setting) , etc.
LCA computation	Emission factor used for calculation, etc.
Labeling	Labeling location, size, additionally indicated items, etc.

To secure PCRs’ fairness and transparency, it is necessary to establish principles and procedures to draw up PCRs, which should be a concept common to all PCRs.

4.5 Calculations in Each Stage *(some examples)*

4.5.1 Raw Material Acquisition Stage

PCRs should individually define each calculation coverage while taking into account product characteristics and recycling processes so that any emissions may not be doubly reckoned in the calculation coverage.

Outline of “Basic Guideline of the Carbon Footprint of Products”

4.5.2 Production Stage

Where private power generation is applied in a production stage, the calculation of GHG emissions of input electricity should not be made in the emission factor applicable to power rates commercially available in general but it should employ another emission factor applicable to the private power generation.

4.5.3 Distribution/Selling Stages

Some products may have GHG emissions vary in a great measure with a shop or a mode of selling. In such a case, a certain scenario may be set up in PCR.

4.5.4 Use/Maintenance Control Stages

GHG emissions in the use/maintenance control stages may be assumed to fall in a variety of cases widely different from user to user. When preparing PCRs, the most standard scenario should be set up to calculate the GHG emitted in these stages.

4.5.5 Disposal/Recycling Stages

No consideration is taken into for those CO₂ emissions, which are emitted upon combustion of the biomass of wood or the like in the disposal/recycling stages.

Outline of “Basic Guideline of the Carbon Footprint of Products”

5. Labeling Method of CFP

5.1 Basic Labeling Rules

5.1.1 Basic Conditions to Label CFP

- a) Mark each product with a value of the CO₂-equivalents emissions throughout its life cycle **per the product, in principle**.
- b) Unit of emissions shall be “g CO₂-equivalents”, “kg CO₂-equivalents” and “t CO₂-equivalents”.

Actual markings, however, shall be “g (grams)”, “kg (kilograms)” and “t (tons).”

It is necessary to describe fractions of a numerical value, with the effective number of digits in calculations taken into consideration.

- c) Organizations who mark their products with CFP should strive to reduce GHG emissions continuously.

5.1.2 Contents of labels

Carbon footprints are marked in the absolute value of CO₂-equivalents emissions.

Outline of “Basic Guideline of the Carbon Footprint of Products”

5.1.3 Labeling Location, Size, etc.

Organizations **shall label of CFP onto the body or packing material of a product in principle.**

For labeling other than on products, organizations can make a selection out of the means, such as website, leaflet, environmental report, price tag, over-the-counter, QR code and other ways that are to be studied.

5.2 Selective/Optional Action

In some cases, a labeling deviated from the basic rules may allow for a more effective reduction of GHG emissions. In such a case, a study is to be made for the feasibility to authorize such a labeling exceptionally.

5.2.1 Expression of Additional Information (reduction ratios, breakdown by process and by part)

5.2.2 Writing down Life (number of service years) Estimated in Durable Consumer Goods

On an as-required basis, the emissions per unit consumption (ex: CO₂ equivalent emissions per year consumption”) are authorized to be additionally marked.

5.2.3 Expression of Regional Difference, Seasonal Variation and Supplier Difference

Key Elements of CFP Pilot Project Japan

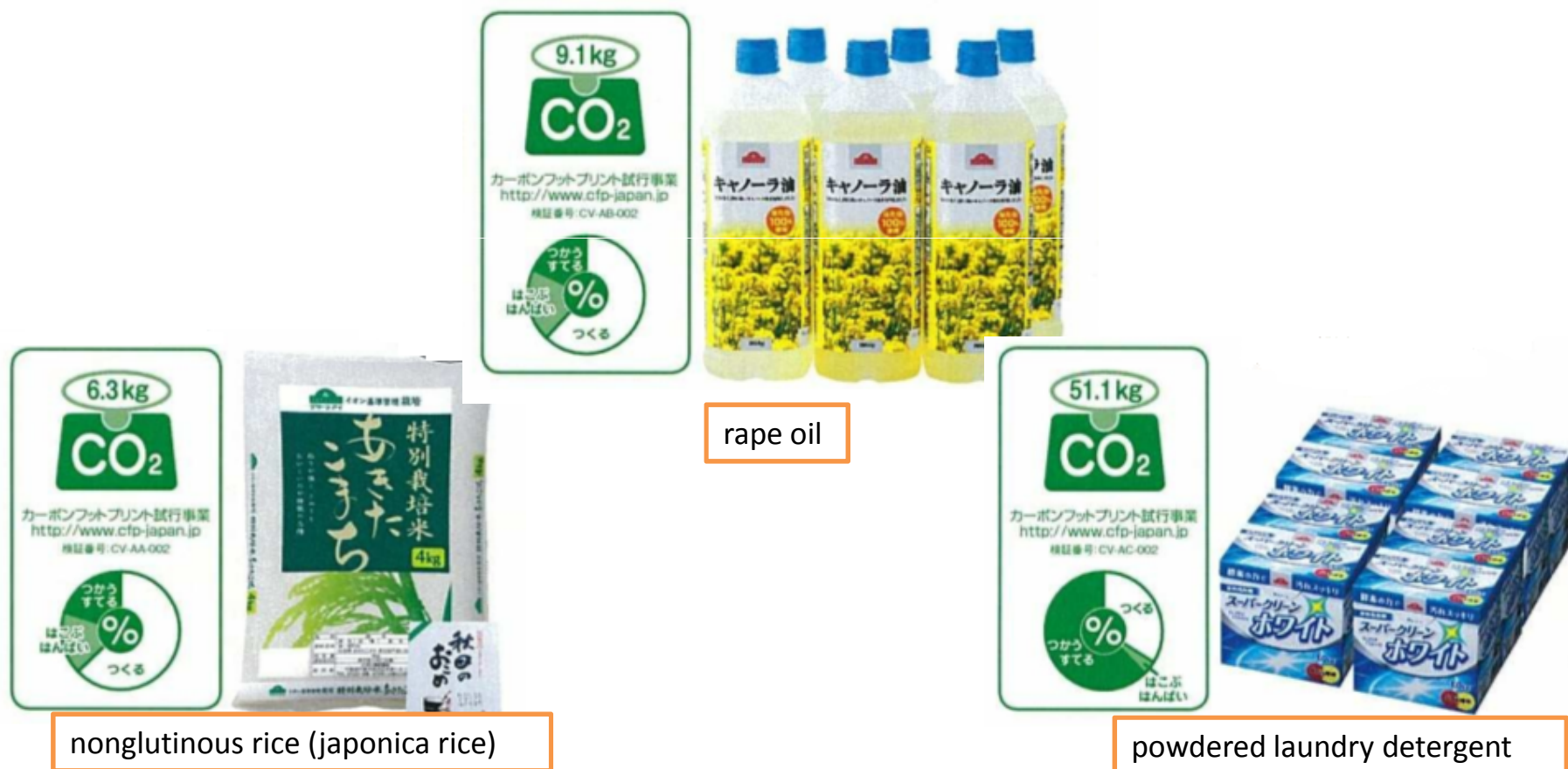
1. PCR (product category rule) approach
 - Calculation rules are transparent.
 - Fair comparability is kept.
 - Data quality is ensured.
2. Program basis
 - Responsible for ensuring credibility and transparency
 - Establishing a procedure to safeguard the consistency of data within a program
 - Maintaining publicly available lists and records of PCR and CFP documents
 - Ensuring the selection of competent independent verifiers and PCR review panel members
3. Independent verification
 - Cost effective based on 14025
 - Speedy
 - Credible

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Start of the marketing of products carrying the Carbon Footprint Label

- In October 2009, the first application was examined to verify the carbon footprint calculation results and labeling method. As a result, the applicant has been authorized to market products carrying the Carbon Footprint Label.



From retailer's web site



Eco-Product Fair 2009

- Products carrying CFP label were displayed at the ECO-PRODUCT 2009.
- Displays were classified into three situations, HOME, OFFICE and SCHOOL.

-Eco Product 2009

10-12, December 2009 at Tokyo big site
over 180000 people participated (+ 8593 last year))

-Carbon Footprint exhibition corner sponsored by METI

62 products (including unverified products) from **27 companies**
were displayed



(NHK news program reporting from the CFP booth)



At home



At office



At school

Japan's activity Eco-Product 2009 (Dec. 10-12) in Tokyo

Coffee



Chocolate



- Report on Participation in Eco-Products 2009 - Explanatory session on the CFP Program

- * Great success and full occupancy with over 300 visitors.
- * Presentations include a panel discussion with a theme to promote consumers' participation, amid gradual progress in distribution of the CFP pilot products in the market.

* Explanatory session on the CFP Program – Taking off for “Visualization of CO₂” emissions from products

- Date: 10:00-12:00, Saturday, December 12th, 2009
- Venue: Reception Hall A, Tokyo International Exhibition Center "TOKYO BIG SIGHT"

<Presenters>

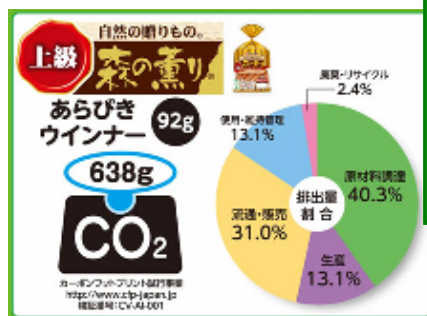
- Explanation on the CFP Program: METI
(showing DVDs, outlining the program and its current status of progress)
- Lectures (including reports on distribution of carbon footprint in the market)
Chairman: Prof. Atsushi INABA (Kogakuin University)
Ms. Yumie KAWASHIMA (AEON Co., Ltd.)
Mr. Kenji FUJIOKA (Calbee Foods Co., Ltd.)
Ms. Kikuko TATSUMI (Nippon Association of Consumer Specialists)
- Panel discussion (consumers' low-emission actions and the CFP)



Authorized CFP labels

- Number of authorized CFP labels: 25 (as of Feb 2nd , 2010)

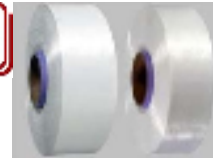
– CV-AA-01 – 04	Rice (japonica rice)	AEON Co., Ltd.
– CV-AA-05	Rice (japonica rice)	Ritsumeikan University, AEON Co., Ltd.
– CV-AB-01 – 02	Rapeseed oil	AEON Co., Ltd.
– CV-AC-01 – 02	Washing powder	AEON Co., Ltd.
– CV-AE-01	Candy (soy sauce flavor)	KANRO Co., Ltd.
– CV-AG-01 – 02	Raw Potato Chips	Calbee Foods Co., Ltd.
– CV-AH-01 – 03	Pouch-packed rice	AEON Co., Ltd.
– CV-AI-01 – 05	Ham and Sausage	Nippon Meat Packers, Inc.
– CV-AJ-01	Rice biscuit	Kameda Seika Co., Ltd.
– CV-AN-01 – 03	Organic liquid fertilizer	Earth Support Corporation



* AEON Co., Ltd. sold these products for year-end gifts.

* Nippon Meat Packers, Inc. plans to sell the products labeled CFP from Feb. 1st. Reference: <http://www.cfp-japan.jp/calculate/verify/permission.html>

CFP Pilot companies/products of Thailand



Carpets Inter®



Sample of Thailand's Carbon footprint

"TUM Kaeng Waan Tuna"

from Thai Union Manufacturing Co., Ltd.

CFP=521 g/can

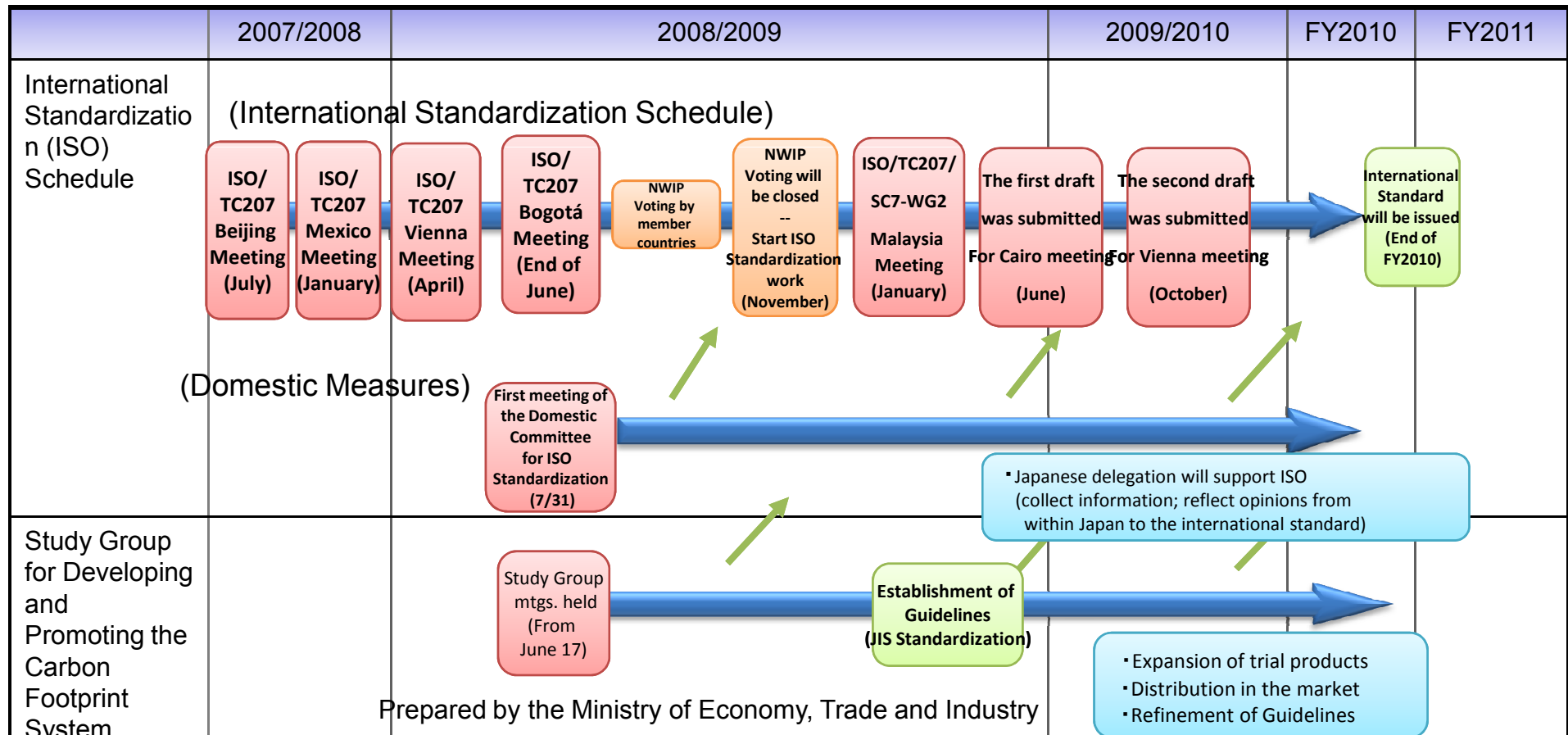


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Domestic and Overseas Standardization Schedule

- The first discussion on Carbon Footprint was held in July 2007 at the Beijing meeting of the TC207 (Environmental Management) of International Organization for Standardization (ISO). Later, the secretary of TC207 received a request from European Committee for Standardization (CEN) to promote standardization.
- In response to this request, TC207/SC7(Greenhouse gas management and related activities) discussed necessities of international standardization at the Mexico City meeting and Vienna meeting held in January 2008 and April 2008, respectively.
- At the Bogotá meeting held at the end of June 2008, New Work Item Proposal (NWIP) was submitted, and the three-month voting period started. A full-scale international standardization work will start by the end of 2008, and following a maximum of three-year work period, International Standard (ISO) will be issued.
- To acknowledge domestic efforts and collect opinions from related parties, a domestic committee was established in Japan, thus establishing a structure to actively involve in and contribute to international standardization work.



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Research on CFP in Eco Product 2009

Dec. 2009, research on CFP was conducted.

Sample: 841 respondent (male: female=2:1)

status: 60% office worker, 10% student, 5% homemaker

age: from 20 years old to 60 years old (equally spread)

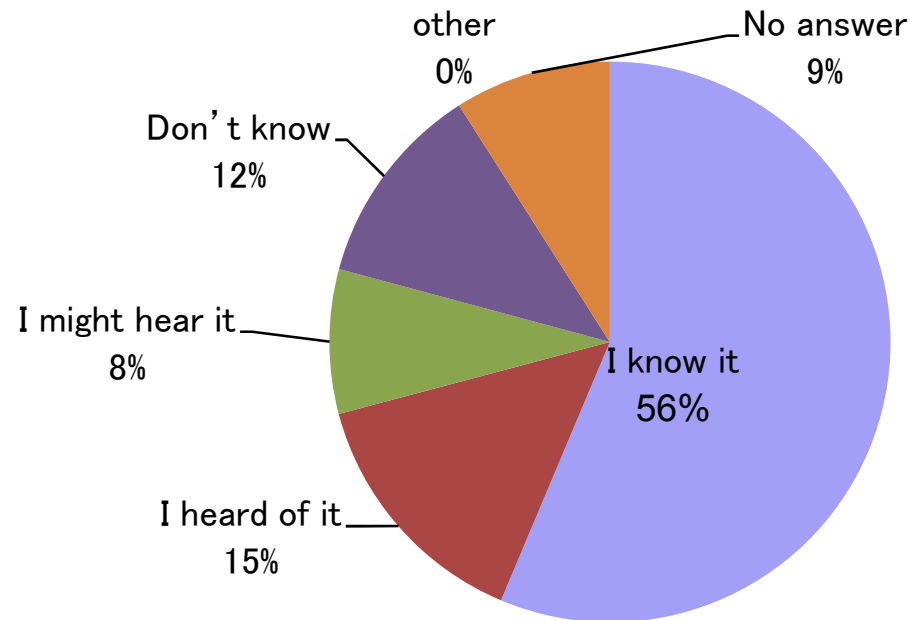


Research on CFP in Eco Product 2009

Q Recognition of CFP

Aggregation of “I know it” and “I heard of it” is over 70%.

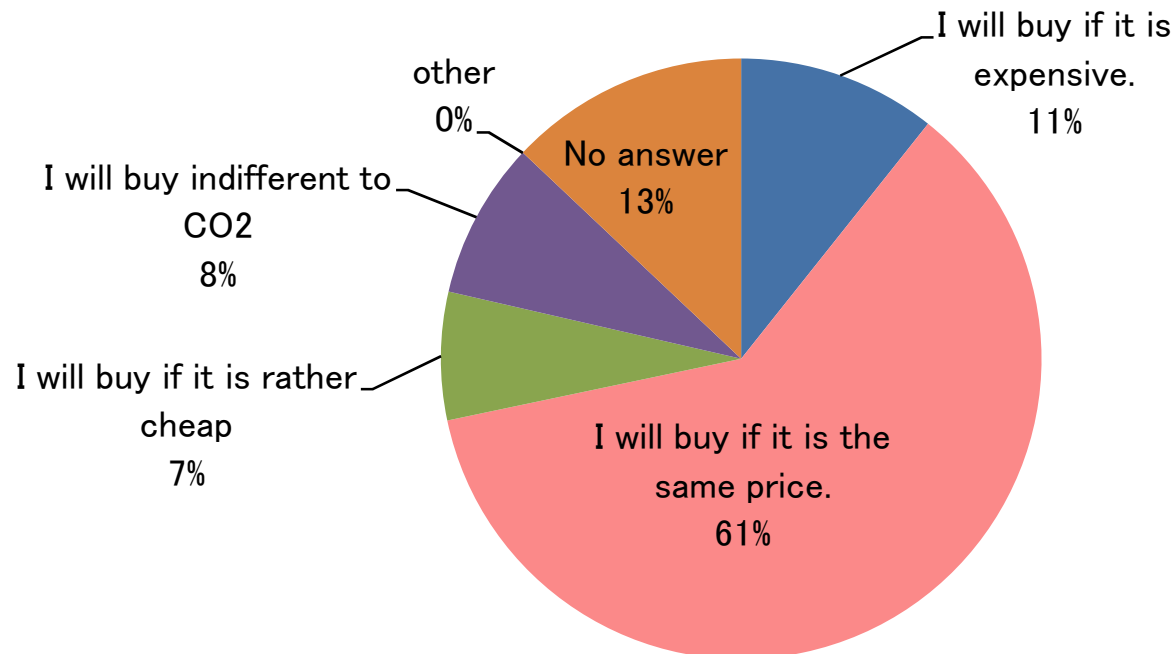
(as shown in previous page, office workers may have high interest on CFP, compare to general people.



Research on CFP in Eco Product 2009

Q Do you purchase low CFP product, if there are two same category products?

11% answered “I will buy if it is expensive”. 60% “I will buy if it is the same price”. For CFP implementation, cost control is necessary.



Research on CFP in Eco Product 2009

Q The value of LCA study result has some extent of range according to LCA characteristic. How do you think to label this value on the product?

56% answered “the cost of the product is more important than the CFP value’ s accuracy”.

choices	ratio
1. The value shall be accurate even if the cost of the product would rise.	22.2 %
2. The rough value of CFP shall be labeled as far as it does not affect the price of the product.	55.9 %
3. If the value has a range, it should not labeled on the product because it might occur misunderstanding. (92 people)	10.9 %
4. other	0.4 %
5. No answer	10.6 %

Research on CFP in Eco Product 2009

Q who answered No3 in the last question, which do you think better for the labeling method?

There were 249 answers. This is more than 92 people who chose No3 in the last question. 47% answered “reduction label without value” and 47% answered “reduction label without value and detail information on the website”.

choice	ratio
1. Reduction label without CFP value shall be put on the product.	46.6 %
2. Reduction label without CFP value shall be put on the product and detailed information shall be shown on the website.	46.6 %
3. Indifferent to label	4.8 %
4. other	2.0 %

Research on CFP in Eco Product 2009

Q There are many environment aspects not only greenhouse gas as well as resource exhaustion, air pollution and water pollution. CFP shows only GHG emission. Do you think that this is enough?

No2 “first of all, CO2 is important” get most number. 70% of the participant has positive impression when no1 and no2 are aggregated.

choice	ratio
1. Only CO2 value shall be labeled because global warming matters.	32.6 %
2. Only CO2 value should be labeled because too much information may lead us misunderstanding.	36.3 %
3. It is not enough to label CO2 information because there are other environment problem not only global warming.	19.5 %
4. Indifferent to environment impact.	1.0 %
5. Other	0.1 %
6. No answer	10.5 %

More information, see website below

➤ English web site of Carbon footprint Pilot Project in Japan

<http://www.cfp-japan.jp/english/>



The screenshot shows the homepage of the 'Carbon Footprint of Products' website. The header features the logo '123g CO₂' and the title 'Carbon Footprint of Products' with the subtitle 'Identification of the quantity of greenhouse gas emissions of products'. A language selector shows 'Japanese'. Navigation tabs include 'HOME', 'About CFP', 'About CFP System', 'List of PCRs', 'List of CFP Products', and 'Rules & Specifications'. A main banner image shows a hand holding a green clover against a blue sky, with the text 'The Carbon Footprint of Products system has been kicked off in Japan'. Below the banner, a 'WHAT'S NEW' section lists events from February 2010. On the right, there are links for 'News Archives', 'Press Releases', 'Events', and 'Global PCR Library'. The footer lists four government ministries: Ministry of Economy, Trade and Industry; Ministry of Agriculture, Forestry and Fisheries; Ministry of Land, Infrastructure, Transport and Tourism; and Ministry of the Environment. A 'Terms of Use' link and a copyright notice for the Ministry of Economy, Trade and Industry are also present.

123g CO₂ Carbon Footprint of Products
Identification of the quantity of greenhouse gas emissions of products

Japanese

FAQ Contact Site Map

HOME About CFP About CFP System List of PCRs List of CFP Products Rules & Specifications

The Carbon Footprint of Products system has been kicked off in Japan

WHAT'S NEW News Archives

2010

- 1 February CFP English Web was opened on 1 February.
- 1 February CFP related workshops and seminars will be held from 8 - 13 February in Tokyo.

Press Releases

Events

Global PCR Library

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