New current of Ideas and Methodologies for Environmental Preservation Activities

March 15, 2011

Japan Environmental Management Association for Industry (JEMAI)

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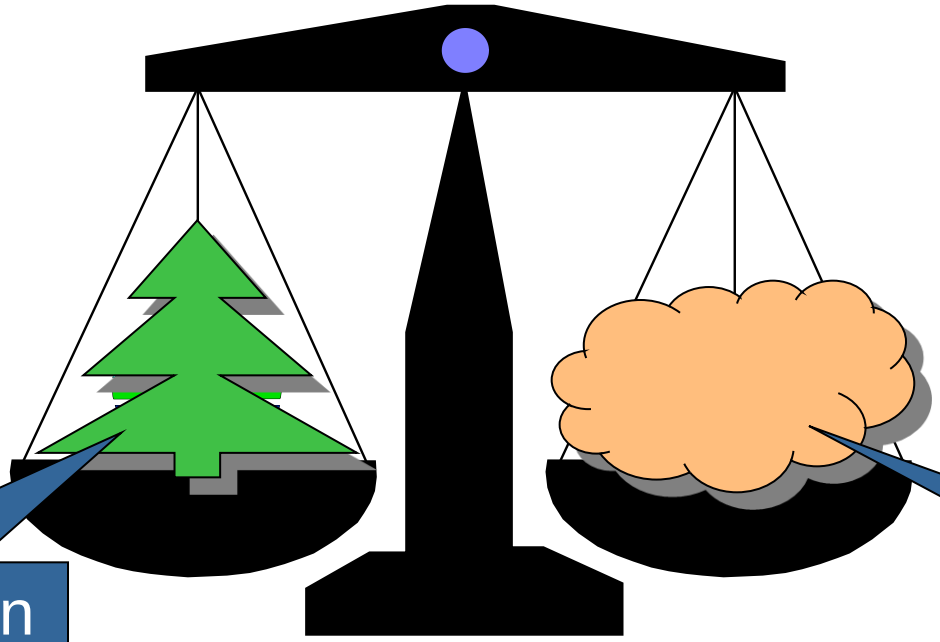
Balance of Environmental Preservation

Capacity of Environment ***Amount of Pollutants***



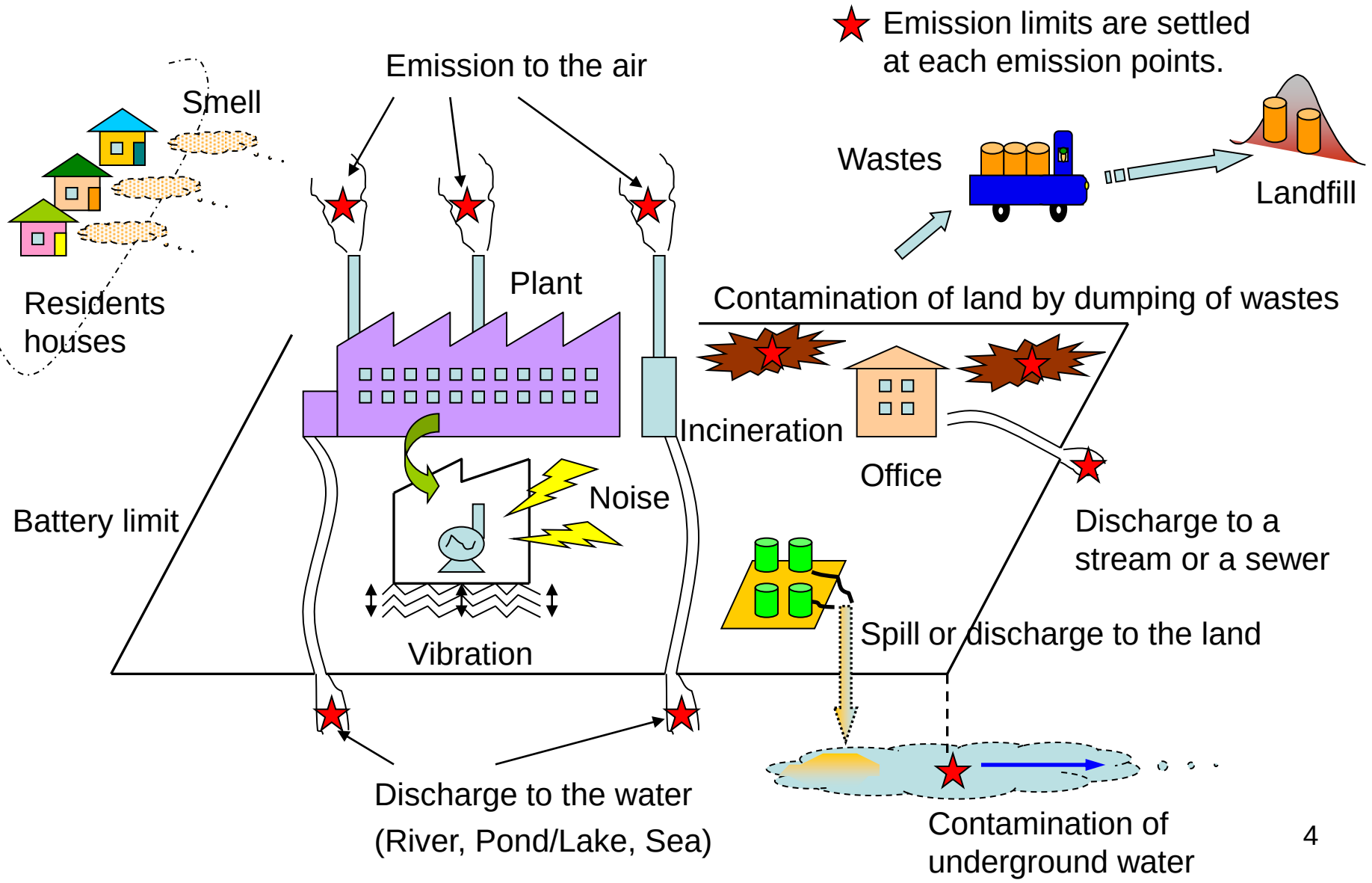
Env. Detoxication
Remediation

Emission
Reduction

Environment Conscious Technologies

Environment Conscious Management

Environmental Aspects caused by Production Activities



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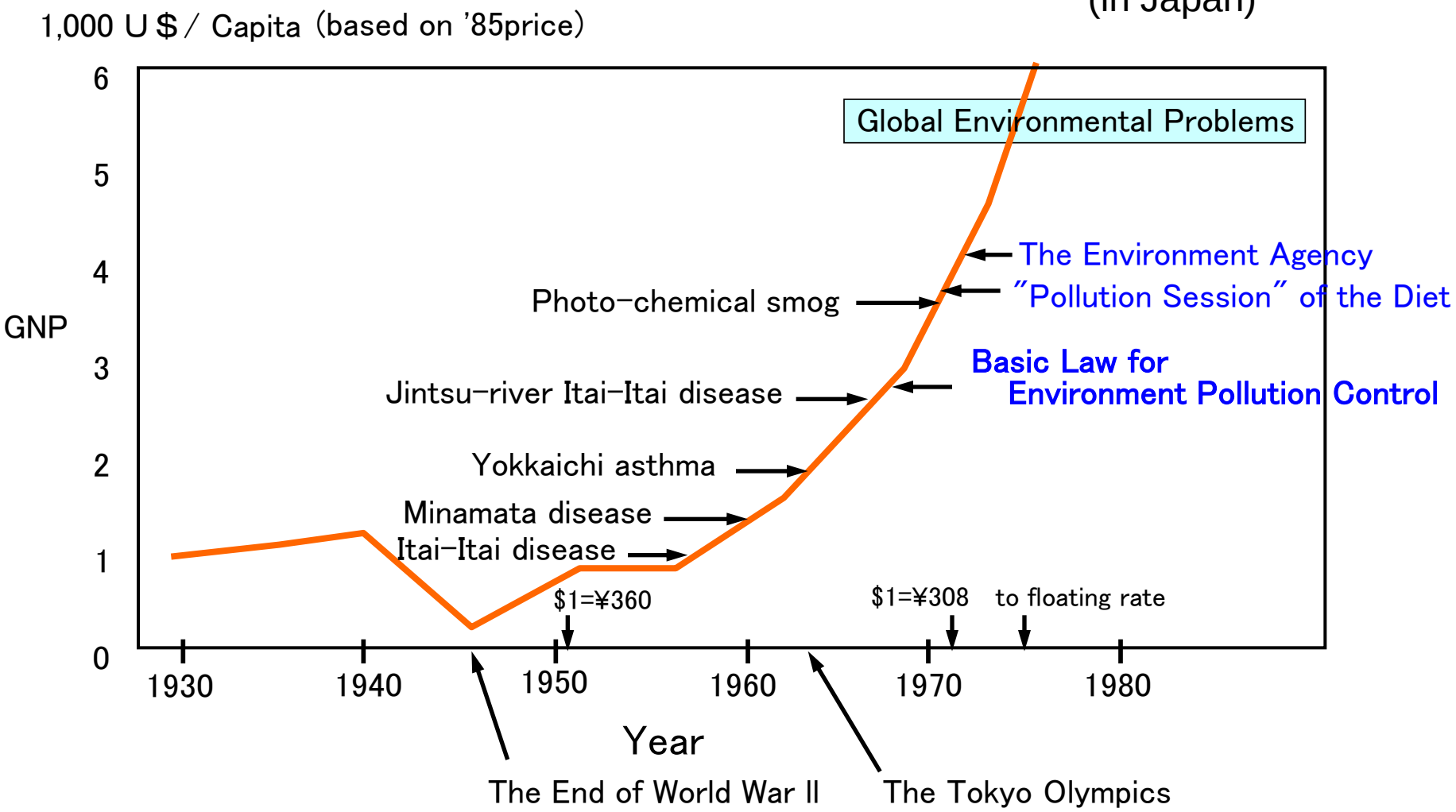
6. New initiative and new technology

ECONOMIC GROWTH AND ENVIRONMENTAL PROBLEMS

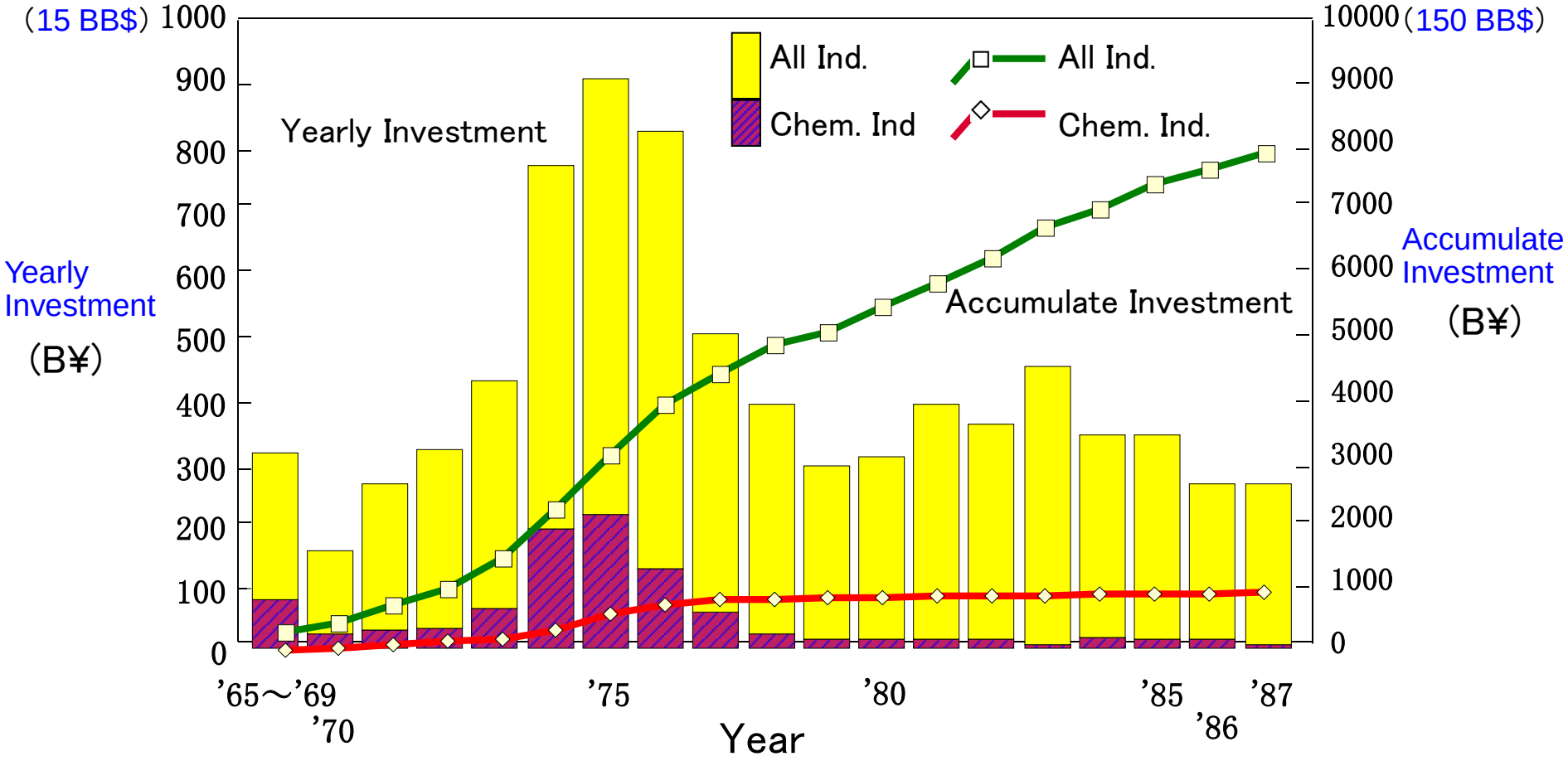
(in Japan)



Main Environmental Laws and Regulations

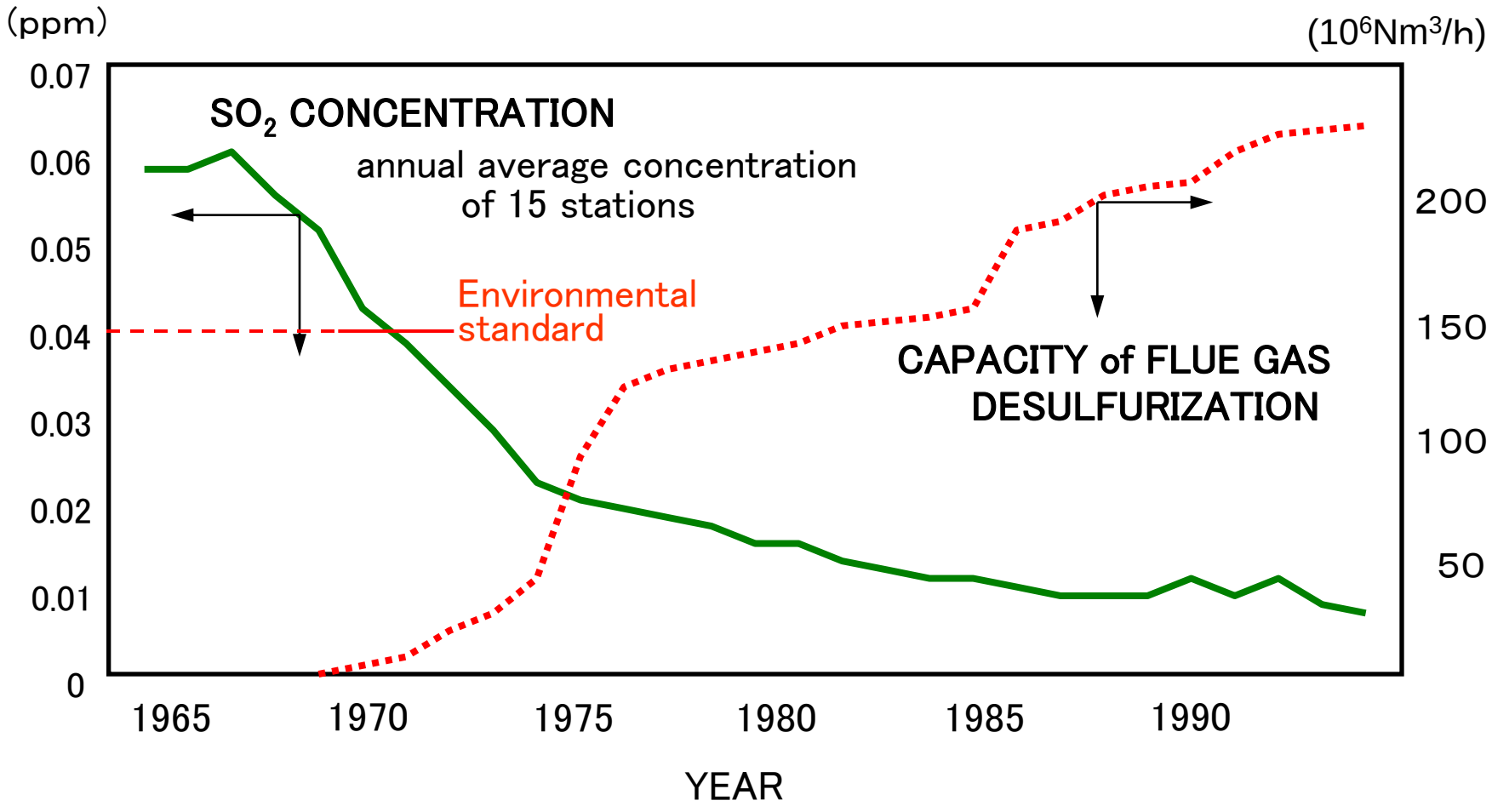
1967	Basic Law for Pollution Control
1968	Air Pollution Control Law Noise Regulation Law Revised Waste Management Law
1970	(National Diet for Pollution Prevention) Water Pollution Control Law
1971	(Environmental Agency) Law for the Establishment of Organization for Pollution Control in Specific Factories
1976	Vibration Regulation Law
1993	The Basic Environmental Law
1999	Law Concerning Special Measures against Dioxins
2001	(Ministry of Environment)

Investment for Pollution Control in Japan



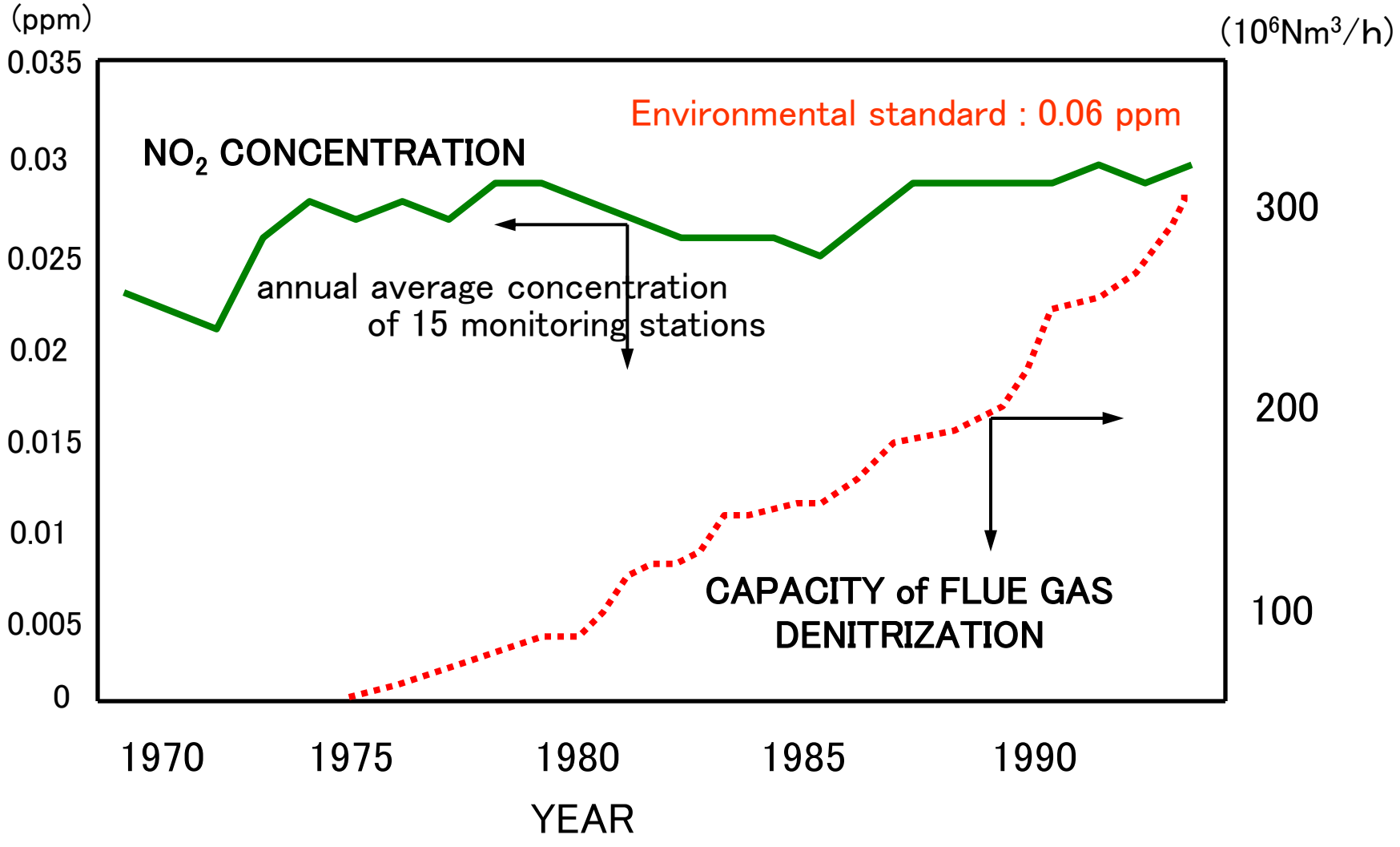
Source : Industrial Pollution Control Association of Japan.(1991)

SO_2 CONCENTRATION in JAPAN



Source : Industrial Pollution Control Association of Japan.(1991)

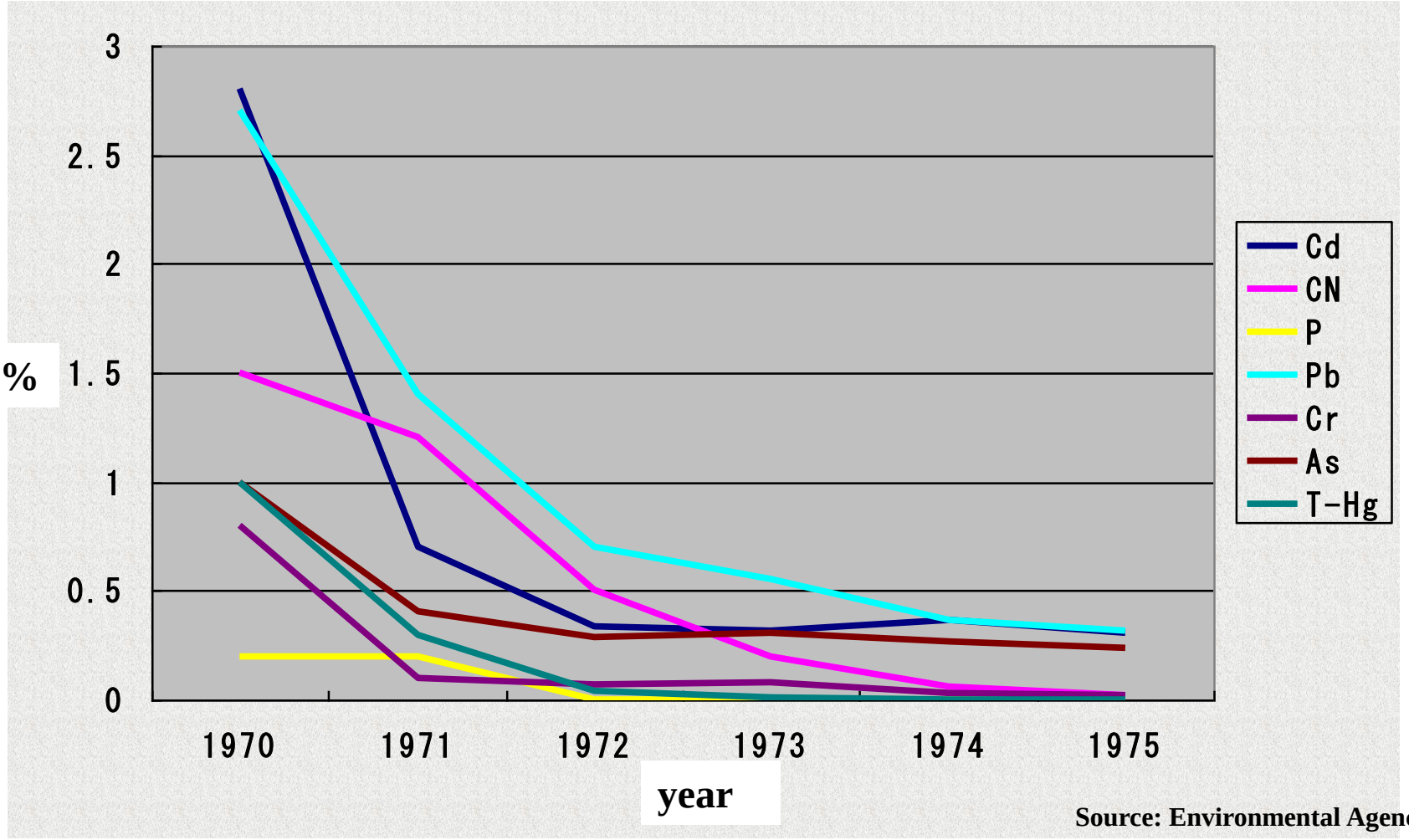
NO_2 CONCENTRATION in JAPAN



Source : Industrial Pollution Control Association of Japan.(1991)

The rate of monitoring points where their data exceeded environmental standards of water

(in Japan)



Source: Environmental Agency

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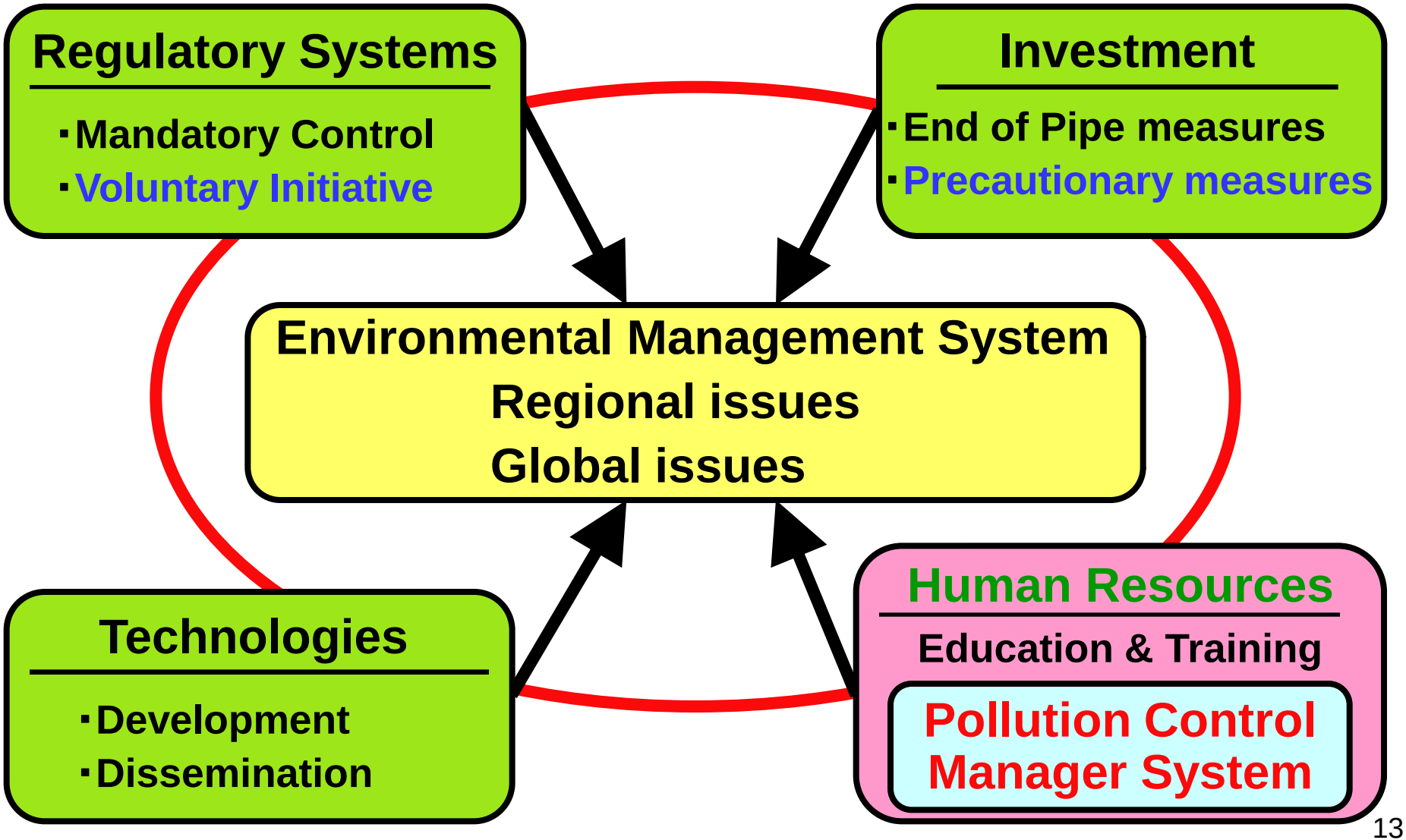
Four Essential Factors to Preserve Environment



Pollution Control Manager（PCM）System

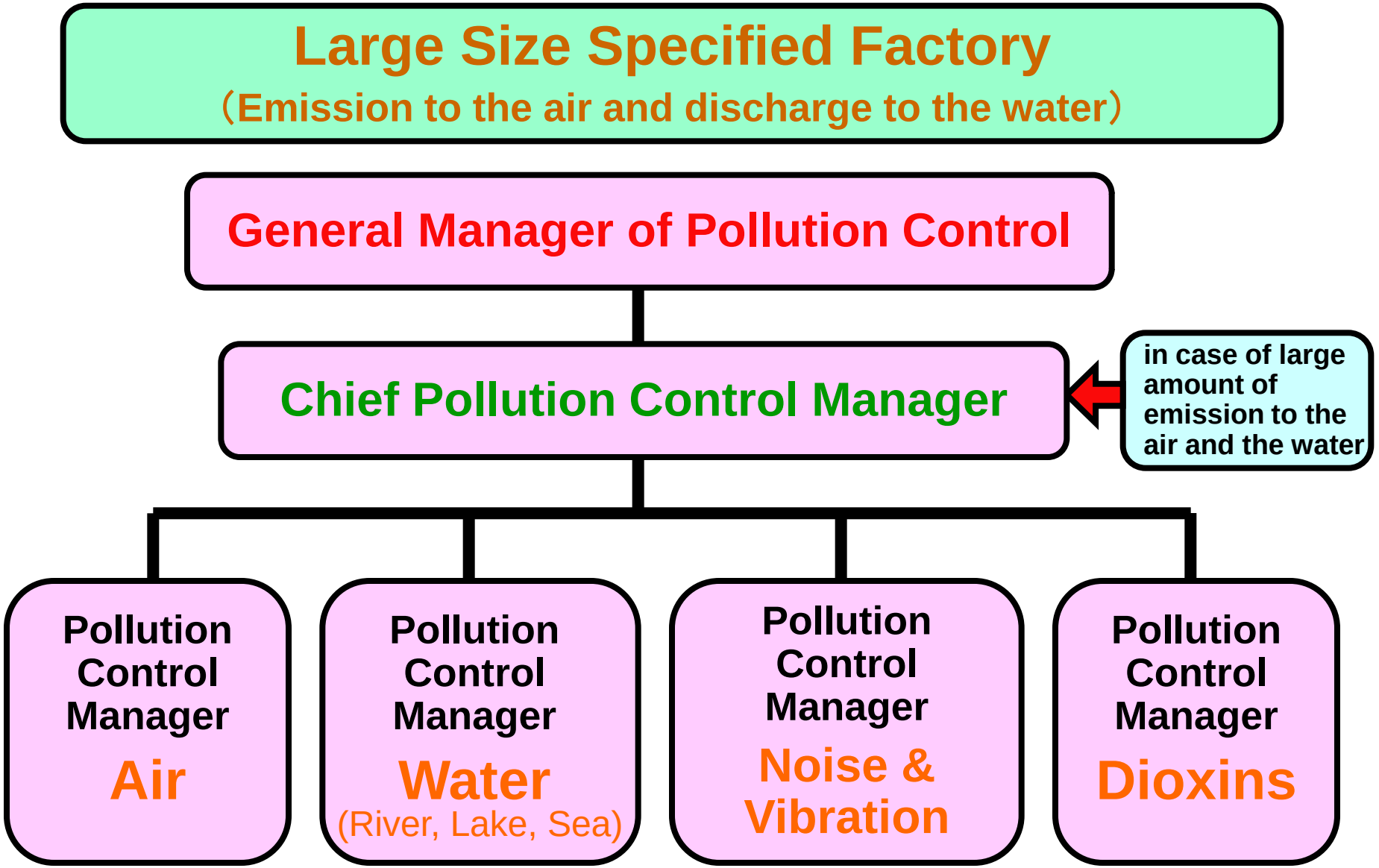
1971 : “ Law for the Establishment of Organization for Pollution Control in Specified Factories”

To establish organization for management

To designate pollution control managers

- General Manager : who has the responsibility of pollution prevention in a factory and oversees PCMs.
- Chief Pollution Control Manager : who is required the license of PCM and oversees and/or coordinates the works between PCMs at large factories.
- Pollution Control Manager : who is required the license of PCM and supervises the operation of pollution prevention facilities and checks their data.

Pollution Control Organization

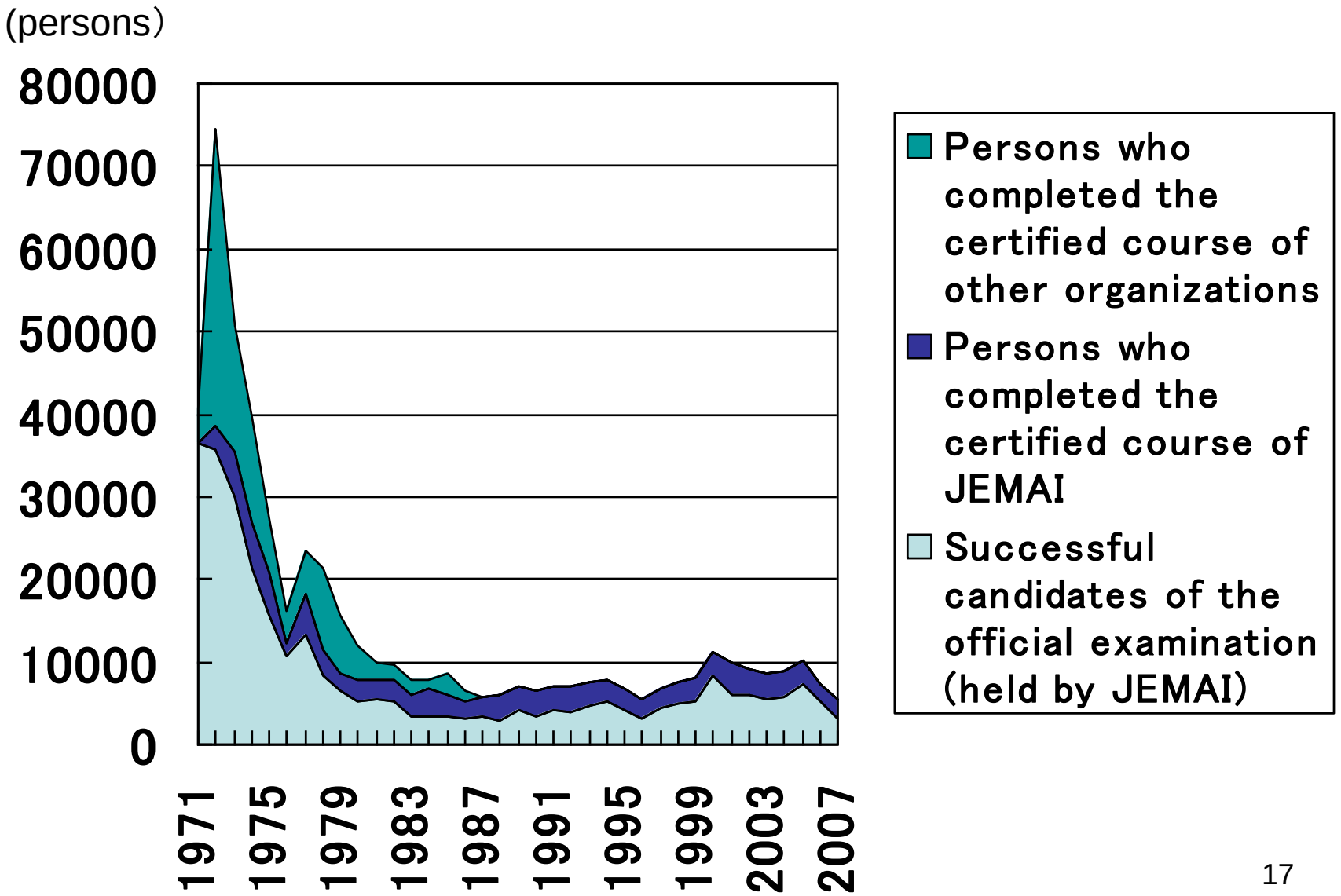


Example

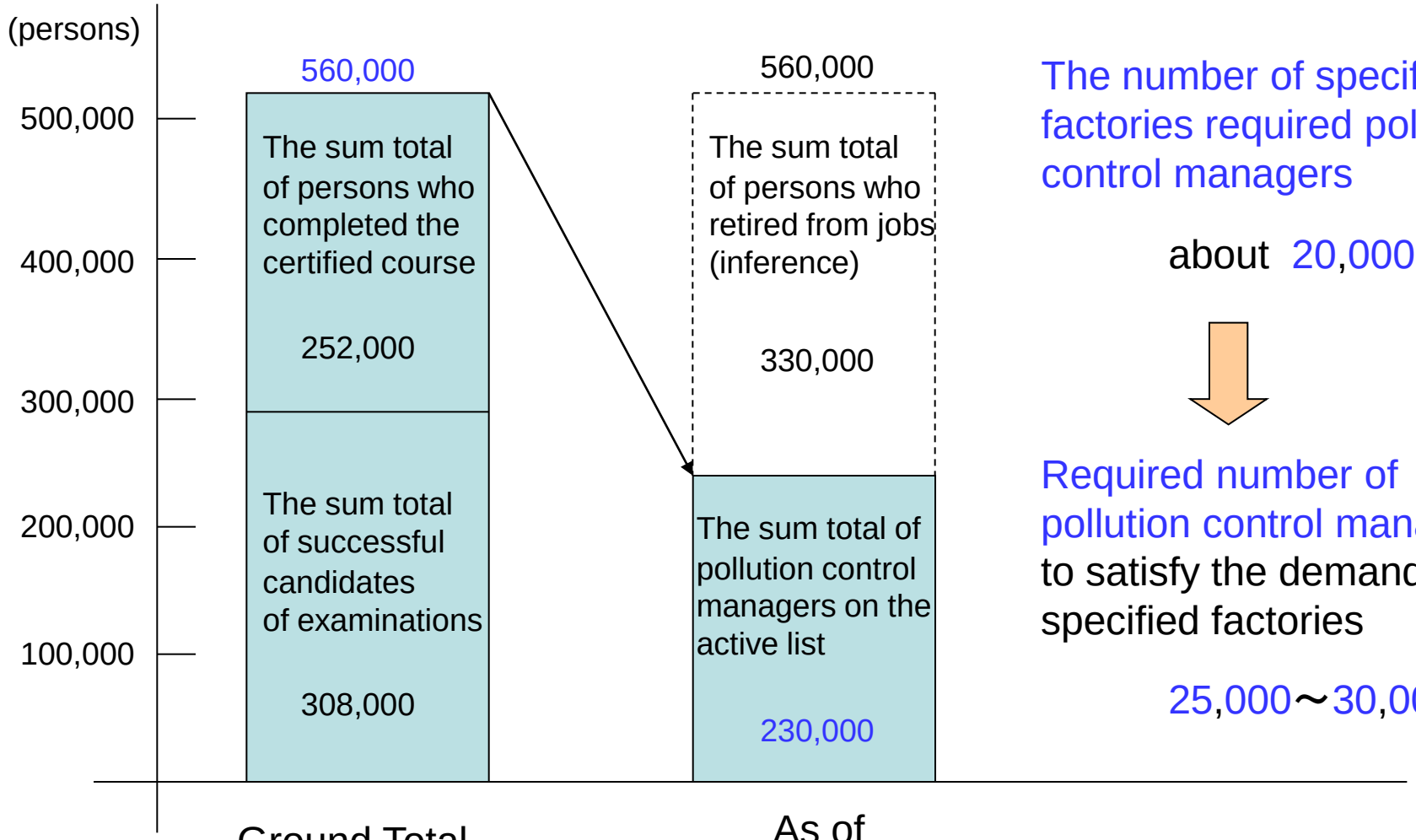
Required knowledge for PCM of Water

Subjects	Contents
General knowledge about environmental pollution, laws and regulations	Basic Environmental Law, PCM Law, General Environmental Issues (history), Environmental Management System, International Cooperation
Specified knowledge about water pollution, laws and regulations	Water Pollution Control Law, Water Environmental Quality Standards, Requirement of PCM Law, Current situation of water pollution, Source of pollutants, Environmental impacts of pollutants
Wastewater Treatment Technology	Waste water treatment planning, Treatment Technology (Biological method, Physicochemical method etc) , Maintenance of equipment, Measuring technology of water quality
Specified knowledge about harmful and toxic substances in the water	Characteristics of harmful substances, Removal and detoxication technology of pollutants, Maintenance of equipment, Measuring technology
Industrial water management at a large-scale factory	Behavior of pollutants in water, Reuse of wastewater, Alternative methods to reduce water consumption, Water recycling system,

The Number of Pollution Control Managers



The Number of Pollution Control Managers



The number of specified factories required pollution control managers

about 20,000

Required number of pollution control managers to satisfy the demand of specified factories

25,000～30,000

Continual Education for Pollution Control Managers

1. Background

- The PCM license is valid forever.
- No periodical education and/or examination
  →to lose the chance to catch up new regulations and technology
- Violation of emission standards because of insufficient management
- Manipulation of monitoring records and/or reports to authorities

Continual Education for Pollution Control Managers

2. Pollution prevention guideline

2006/6	"The committee of making the guideline" was organized by METI (Ministry of Economy, Trade and Industry) and MOEN (Ministry of the Environment).
～2007/3	The committee was held seven times.
2007/3/15	"The report on the environmental management procedure to prevent pollution from factories" was published.

3. Agenda of continual education and training

(1) Laws and Regulations (2.5 hr)

- Recently established environmental laws and regulations
- Revised and/or new environmental laws and emission standards
- Regional environmental regulations and emission standards

(2) Real examples of violation and false records/reports (3.0 hr)

- Violation against emission standards
- Manipulated（False）monitoring records/reports to authorities

Causes and Countermeasures to prevent returns

(3) Mini Quiz or mini examination (0.5 hr)

- To measure understanding level of participants

4. Textbook and distribution materials

- Textbook
- Pocket diary with tables of environmental and emission standards
- Certificate of attendance

6. Continual education

(1) Yearly “Continual education for pollution control manager”

- Active PCMs : 25000～30000 persons
- Attendant of ’08 seminar : 2000 persons (presumption)
- Nation-wide seminars

(2) Yearly “Skill up education of recent pollution prevention technology”

- Registration to the list of PCMs who finished continual education
- Specific Seminars according to the kinds of PCMs (air, water, etc)

(3) Follow up service for registered PCMs

- Periodical e-mail of recent EMS information (all members)
- Periodical e-mail of recent information of regional regulations and standards (members relevant to the region)

Reference

Pollution Control Manager（PCM）System in Asia

Philippines

Pollution Control Officer System（PCO）（Already established, but…）

Thailand

Environmental Supervisor System
（Established in 2002; water, air, solid waste）
National Examination (22 times): Applicants; 12,000, Certified; 3,000

China

Industrial Environmental Manager System（trial at two industry sectors）

Indonesia

Environmental Pollution Control Manager Program（EPCM）
（Established in West Java in 2004; wastewater (prep. air, waste, noise)）
Provincial Examination (two times): December ’05 and ‘06（water）0

Vietnam

Pollution Control Manager System（in consideration）

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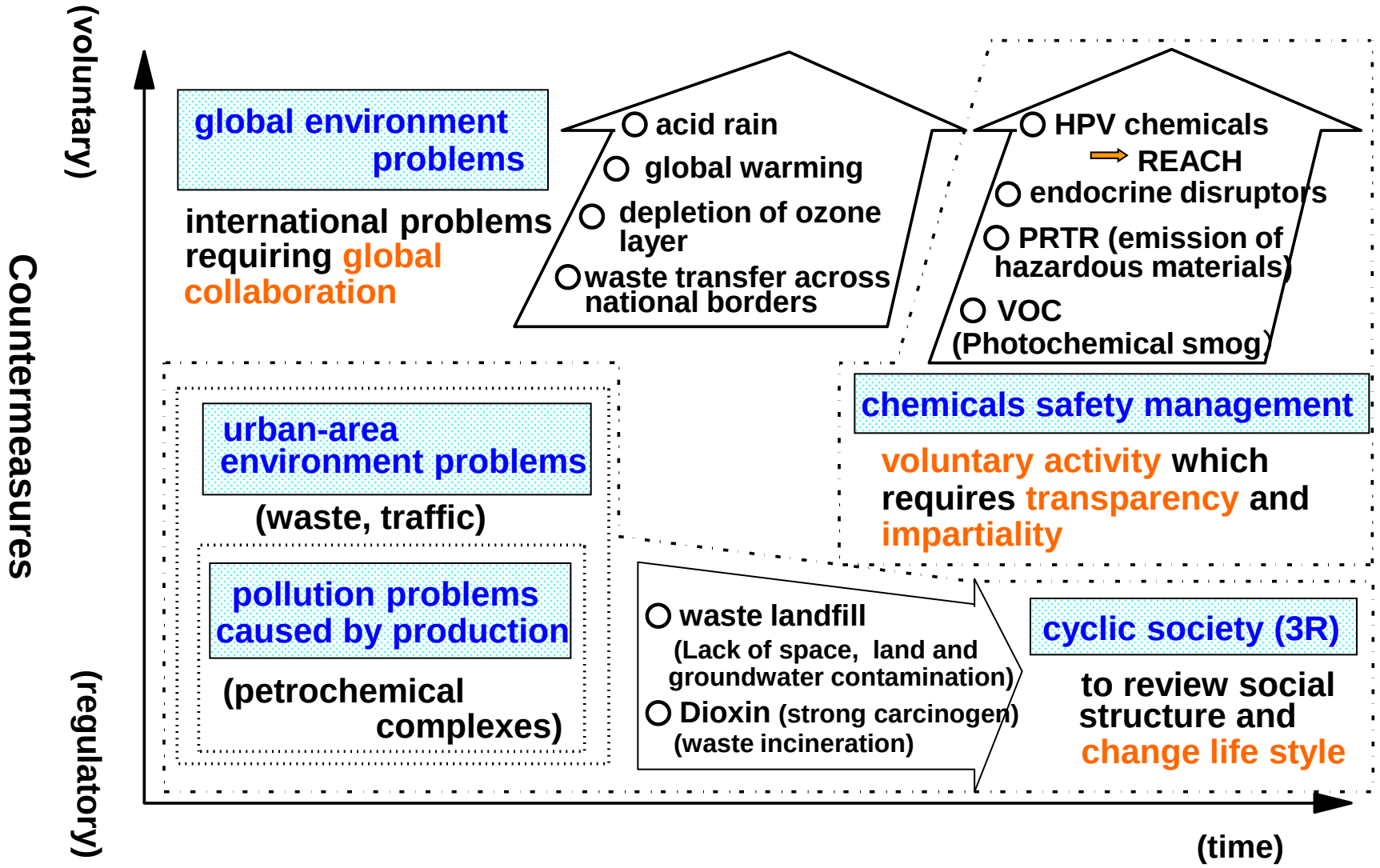
Diversification of recent environment problems and their features



Environmental Problems Confronting the Earth Today

1）Expansion of problems

Global Warming（CO_2）, Ozone-layer depletion : Global Environmental Problems

Acid rain, Health damage caused by air and water pollution : Interregional Problems

Industrial Waste（Illegal disposal, Waste Treatment） : Regional Problems

2）New Environmental problems

The recent environmental problems could affect the very people who cause such problems. (Sustainable Development)

New risks of health damage may be caused by a very small quantity of chemicals such as endocrine disruptors. (Precautionary Principal)

To preserve Biodiversity from the damage caused by human activity.

Changes in the Attitude toward Environmental Problems

1. Past Attitude

   Countermeasures were devised only after environmental problems had occurred.

2. Recent Attitude

   Prevent damage beforehand.

   (1) Employing Scientific methods to analyze problems and facts.

   (2) Take countermeasures to prevent damage.

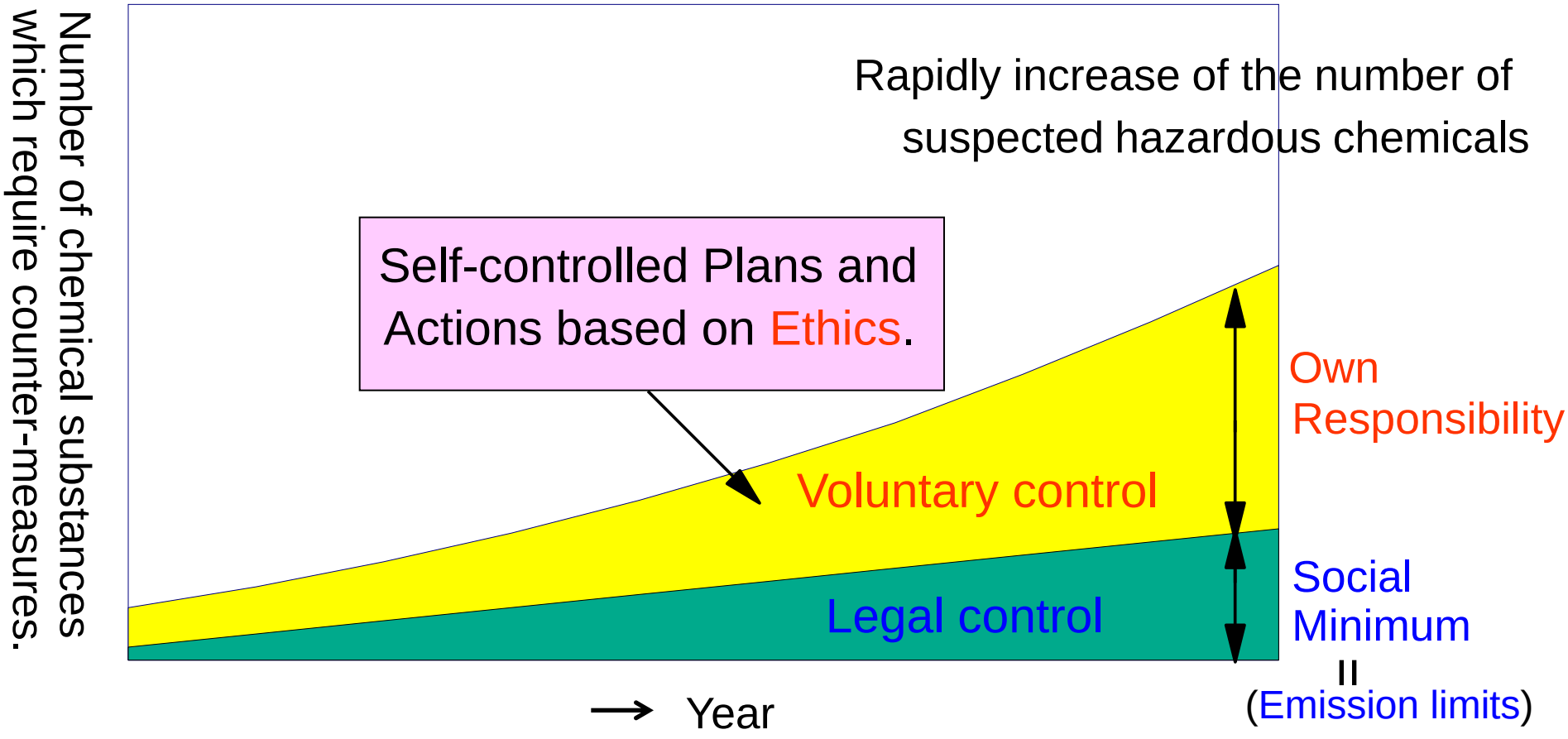
Voluntary initiatives based on the principal of corporate ethics.

In case of Endocrine disruptors world-wide cooperation of chemical industries had been done and some chemicals were identified as it.

Many restrictions were placed regally and/or voluntary on the point of children's health.

How to overcome ”Recent Environmental Problems”

(Example : image of Chemicals safety)



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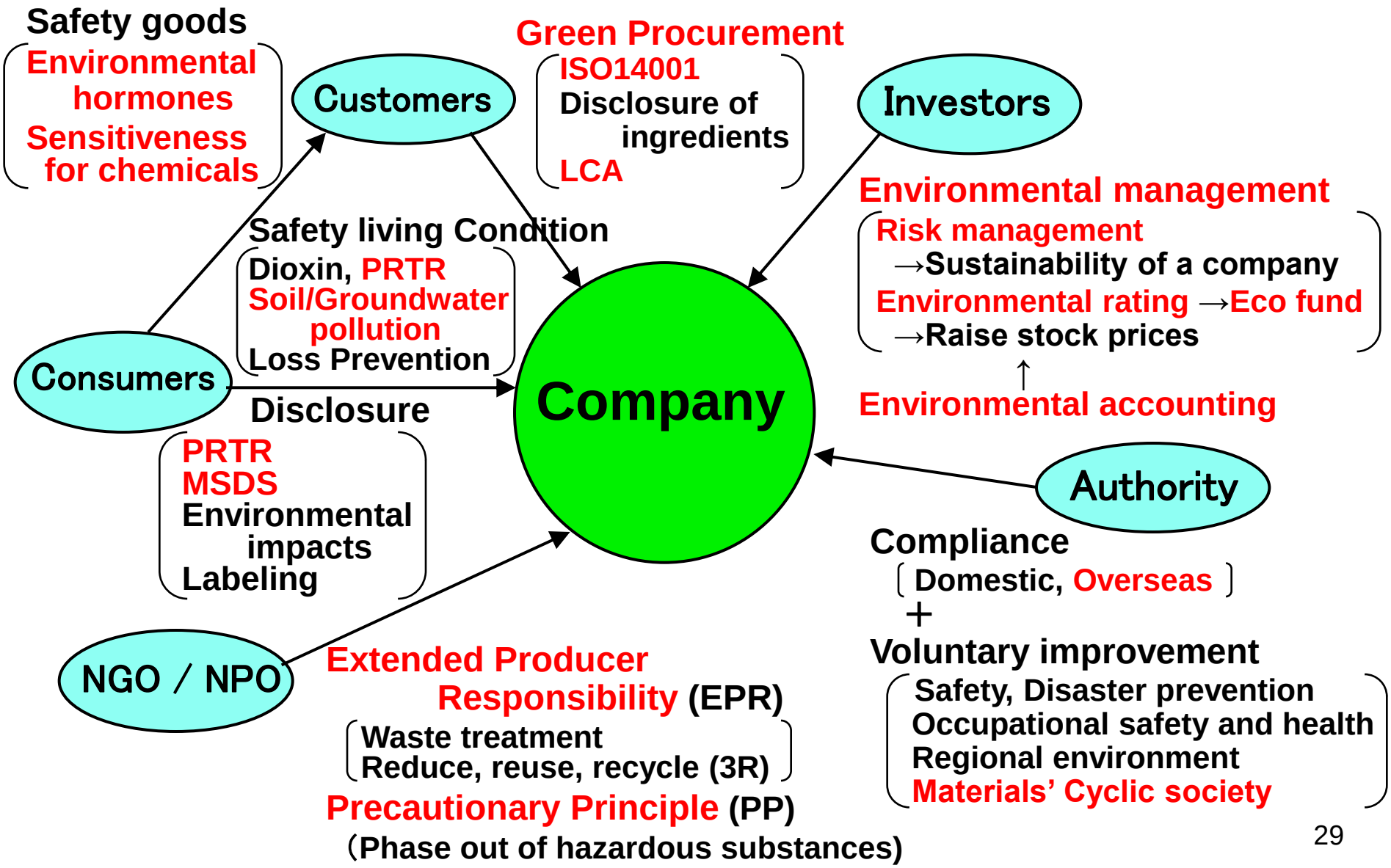
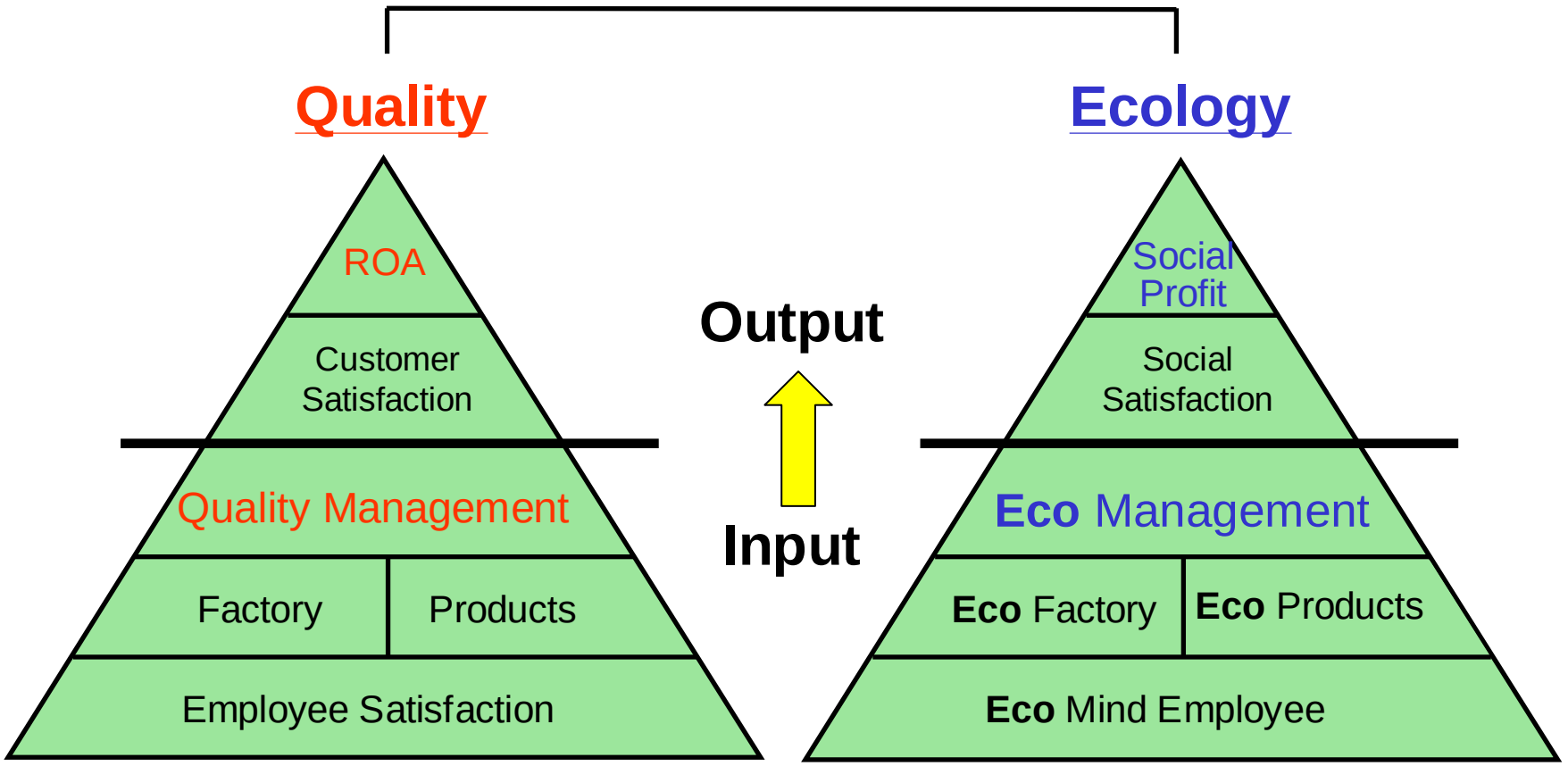
Demands from Society

(CSR : Corporate Social responsibility)



Expected company by the society

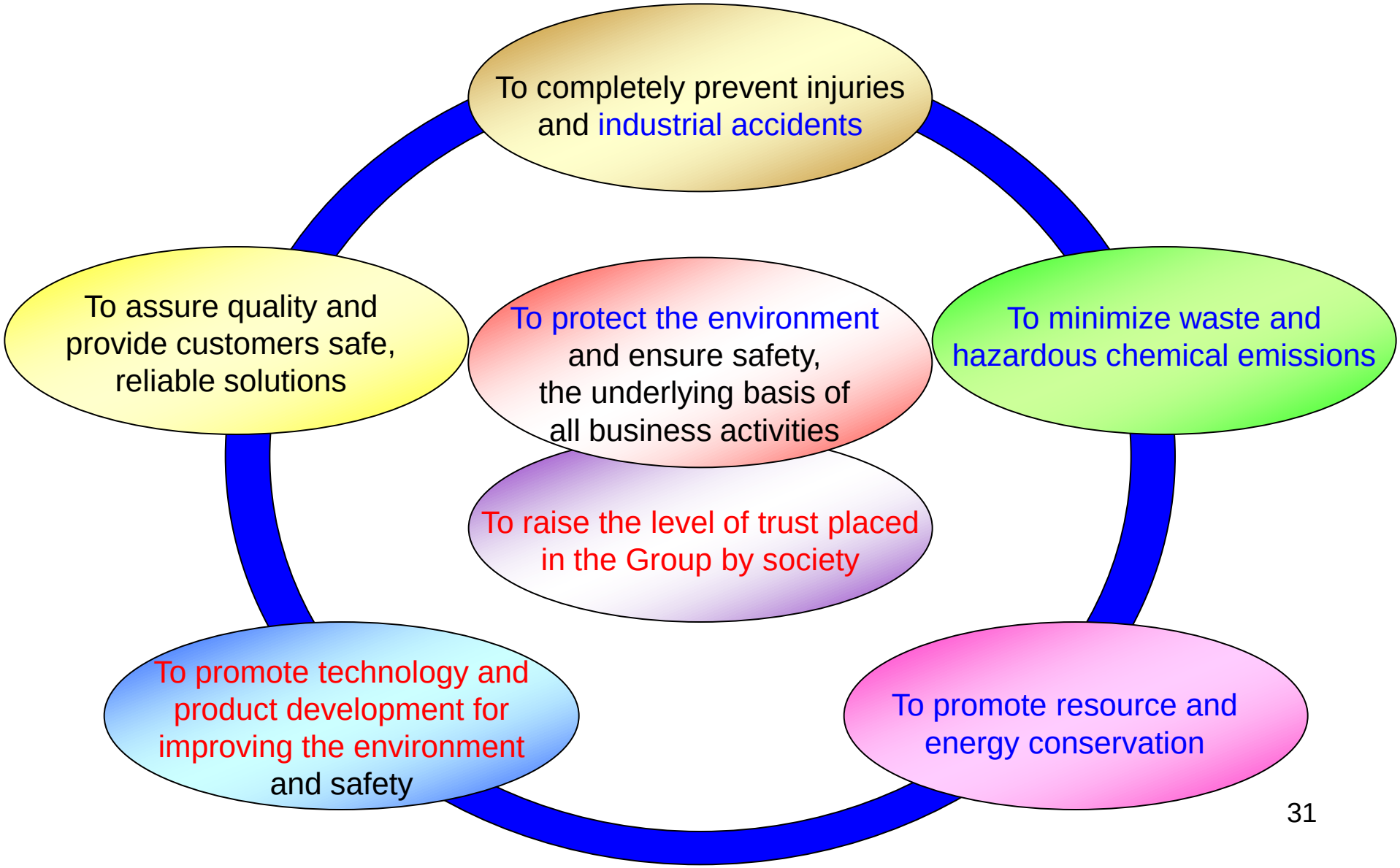
Eco-conscious Company



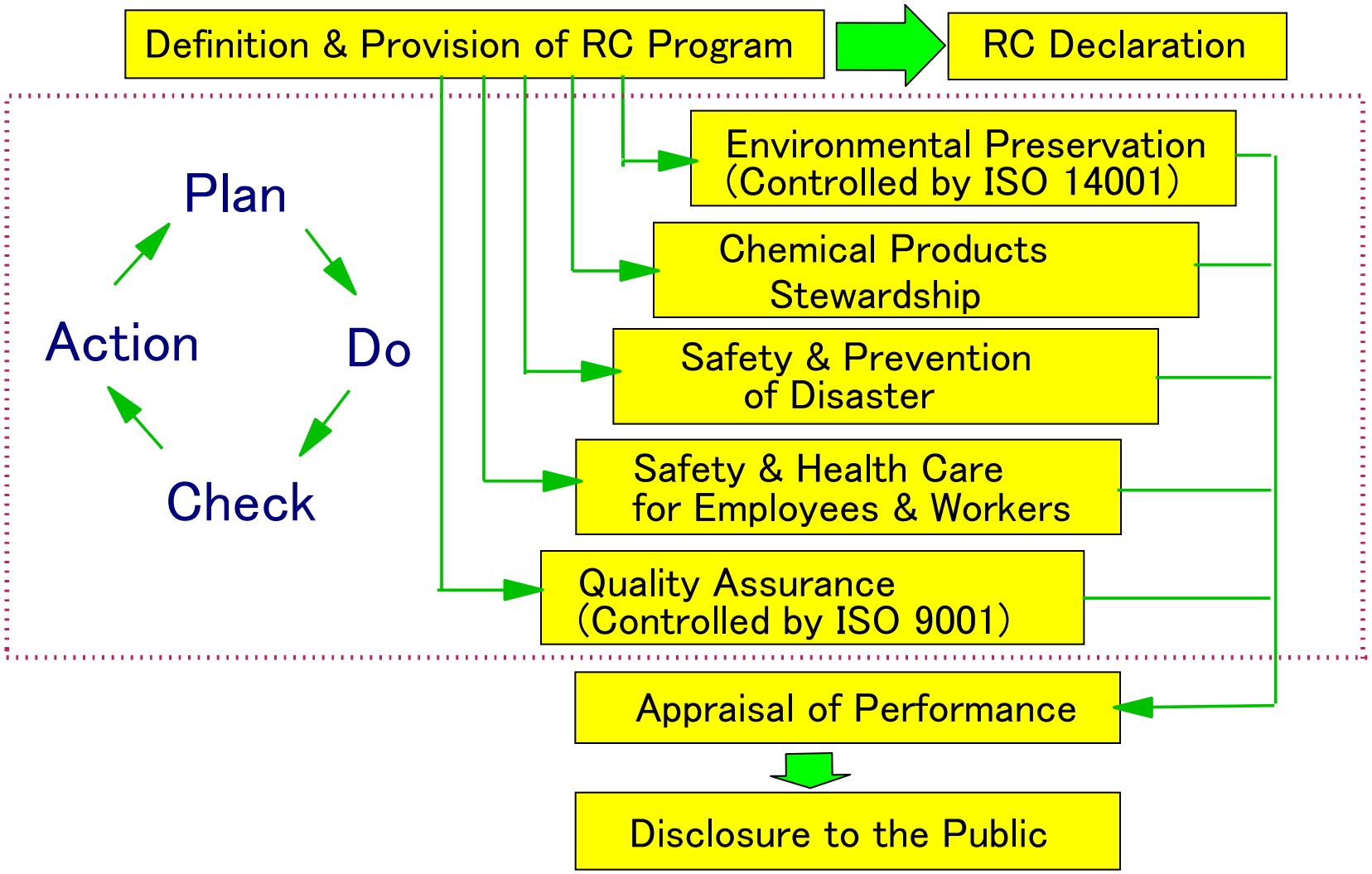
Quality orientated management

Environment orientated management

Example of corporate EHS philosophy



Responsible Care (RC) initiative in chemical industry



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New trend of Environmental Management

1. Key words

Precautionary Principal
Sustainable development / Eco-products
Global warming

2. New initiatives and technology

☆ New regulations

PRTR (Pollutant Release and Transfer Register)
ELV（End-of life vehicle)
WEEE (Waste Electrical and Electronic Equipment)
RoHS (Restriction of Hazardous Substances)
REACH (Registration, Evaluation and Authorization of Chemical substances)
EuP (Directive for eco-design of energy-using products)

☆ New tools of Eco-design

LCA (Life Cycle Assessment)
QFDE (Quality Function Deployment for Environment)

☆ Labeling of eco-conscious products (for Transparency and Impartiality)

Environmental Label (Type III)
Carbon Footprint / Carbon Offset

The PRTR Scheme

What is PRTR (Pollutant Release and Transfer Register)?

For chemicals which may be harmful to human heath and the ecosystem, this scheme requires businesses to report how much of these chemicals are released to the environment and how much of them are transferred, as a part of wastes, to outside of corporate premises, so that the government will prepare and publish the statistics.

The scheme aims at facilitating businesses to improve their chemical management practices and preventing problems against environmental conservation.

History

1992: Earth Summit "Agenda 21" gave a framework for the PRTR Scheme.

1996: OECD initiated efforts to promote the PRTR Scheme.

2000: The PRTR Law was introduced in Japan.

The PRTR Law has been introduced in the U.S.A, Canada, Australia, United Kingdom, Holland and Korea among other.

Brief explanation of new regulations

ELV

Reduction and proper treatment of waste from End-of-Life Vehicle.
Restriction on the use of four hazardous metals in new Vehicles.

WEEE

Regulation on the recycling of electrical and electronic equipment with recycling quotas and designation of responsibility for collection, treatment, recovery and disposal.

RoHS

Restriction on the use of certain six hazardous materials in new electrical and electronic equipment.

REACH

All products containing chemical substances which are produced and/or introduced in EU should be registered with safety data.

EuP

Eco-design directive on energy-using products.
Sets eco-design requirements for the whole life cycle of energy-using products.

Outline of EuP Directive (2005/32/EC)

- Product-related environmental assessment
- Focus on energy efficiency, life cycle perspective, accountability for environmental actions and assessments. ⇨ LCA***
- Environmental effects of all products throughout their life cycles should be known and documented in a quantitative way (i.e. more than just energy consumption). ⇨ LCA, Labeling
- Voluntary commitments are welcomed, however, work had commenced on "specific implementing measures", which will provide a basis for legislative regulations.
- Continual environmental improvement of products and actors is the goal (IPP*, eco-design, emissions trading or EMS** provide the frameworks and tools) ⇨ LCA, DfE****

IPP* : Integrated Product Policy, EMS** : Environmental Management System
LCA***: Life Cycle Assessment, DfE****: Design for Environment

Chemicals' Management through Supply Chain

Substances **Preparation** **Article** **Finished products**

Materials' production
Chemical industry

Resign pellet, ink, paint etc

Parts manufacturing

Assembly
Electric/electronic industry

MSDS

IMDS

JGPSSI

Producing and trading of chemical substances	**Processing of materials and/or making of semi-manufactured goods**	Making and trading of finished goods

Established JAMP consortium（Japan Article Management Promotion-consortium)
September, 2009

Foundation member companies :

旭化成　花王　住友化学　TDK
大日本インキ化学工業　村田製作所　富士写真フィルム　セイコーエプソン　東芝
三菱化学　ライオン　日立製作所　富士通　松下電器
三菱電機　リコー

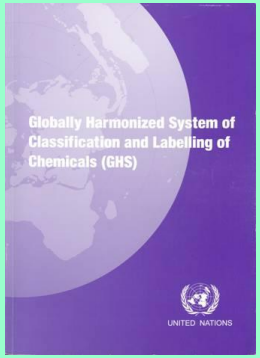
What is GHS ?

UN Initiative

To use same label for substances of same category

Globally Harmonized System (GHS) for
Classification and Labeling of Chemicals

- An internationally agreed system for standardizing and harmonizing the classification of chemicals and communication of those hazards.
- The same hazards will be described and labeled in the same way all around the world.
  (The GHS was agreed by UN CETDG/GHS)
- Published in July, 2003. *(Purple Book)*
- Date of Introduction : by the end of 2008



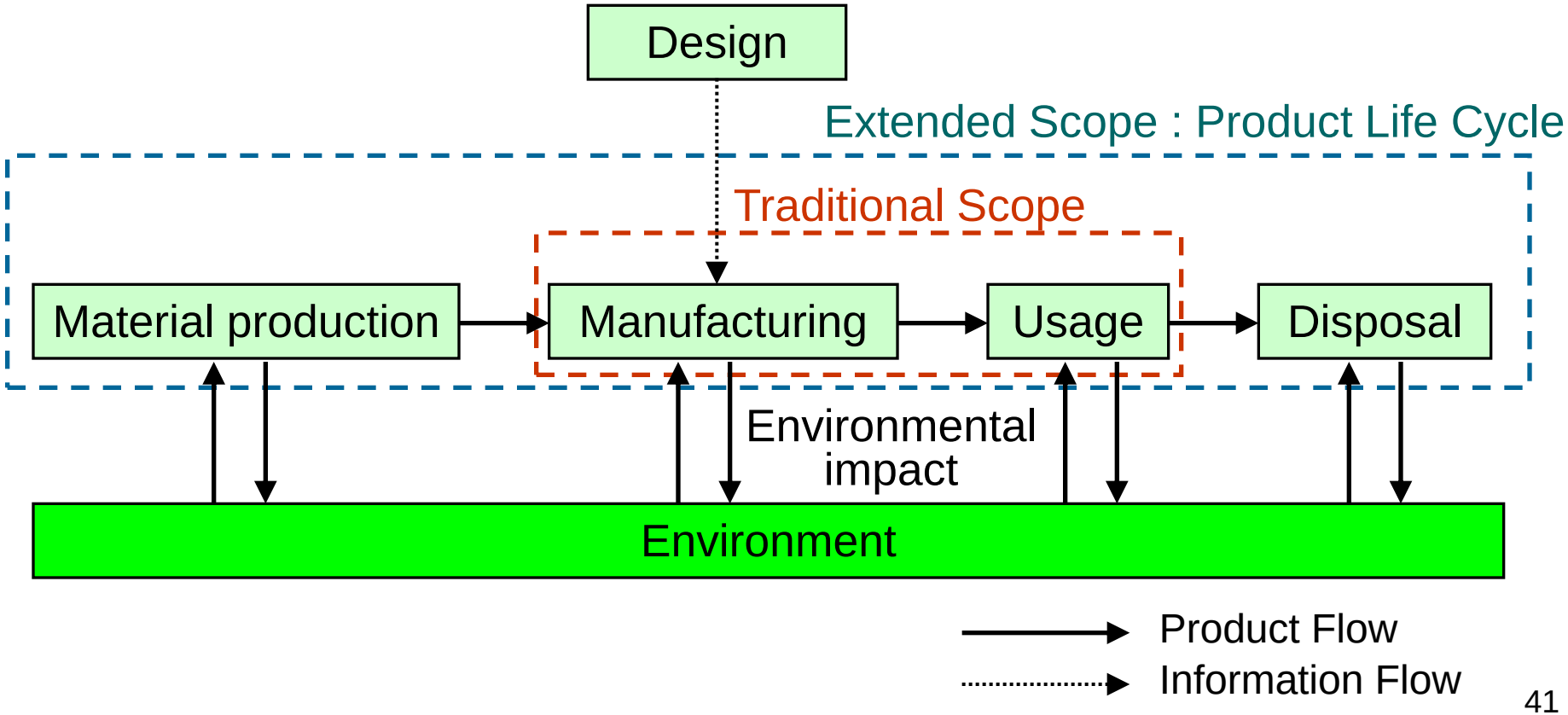
GHS Symbol Mark

Flame (Flammable/ Self-reactive/ etc.)	Flame over circle (Oxidizing/ Organic peroxide)	Exploding bomb (Explosives/ Self-reactive/ etc.)	Corrosion
引火性／可燃性	酸化性／有機過酸化物	爆発性／自己反応性	腐食性
			
Gas cylinder (Compressed gases)	**Skull and crossbones** (Acute toxicity)	**Exclamation Mark** (Acute: lower level) **Double Exclamation** (Chronic: higher lev)	**Environment** (Aquatic toxicity)
	急性毒性 	急性毒性（低レベル） 	水生環境有害性 

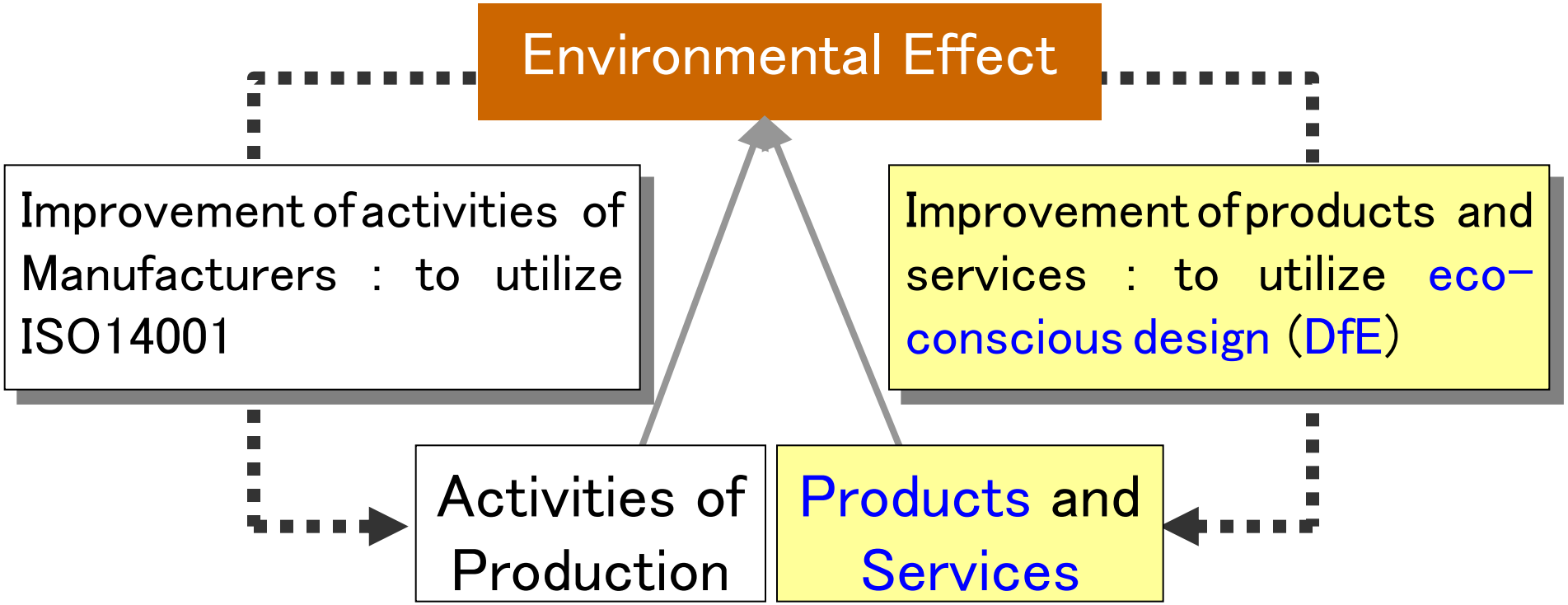
感作性
変異原性
発がん性
生殖毒性
特定標的臓器/全身毒性

Extended Producer Responsibility (EPR)

- Avoiding “Elsewhere Emission”
- Manufacturers’ EPR proposed by OECD in 1994



How to minimize environmental damage

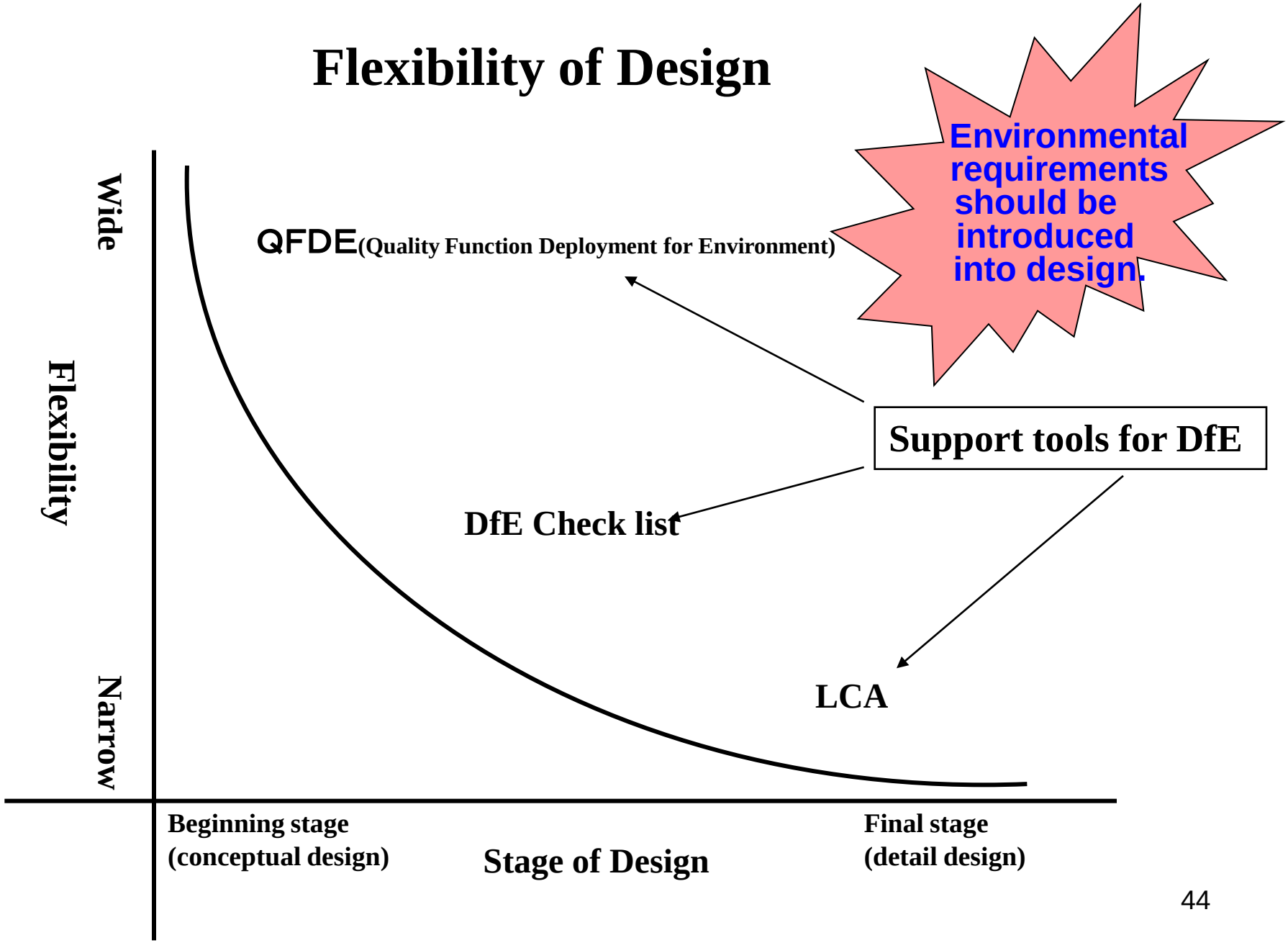


How to find improvement points to be considered?

Stage of life cycle / Point of view	Production	Transportation	Use	Waste
Effective use of materials	・使用材料の低減 ・希少材料使用低減 ・再生材料の利用	・梱包材の削減	・廃液、排水の削減	・分解性が高い ・材料の分別が容易 ・材料の劣化が少ない（再生容易）
To save energy consumption	・ユーティリティ（水、電気、ガス）の削減	・積載効率の向上	・消費電力の削減	・分解が容易 ・部品の再利用
Reduction of Hazardous substances	・工程内での有害物質の使用削減 ・有害物質を含まない材料の利用	・クリーンな輸送手段の選択	・排気、排水がきれい ・廃液が少ない	・焼却時に有害物質が発生しない ・有害物質の分離回収が容易

Examples of countermeasures

Flexibility of Design

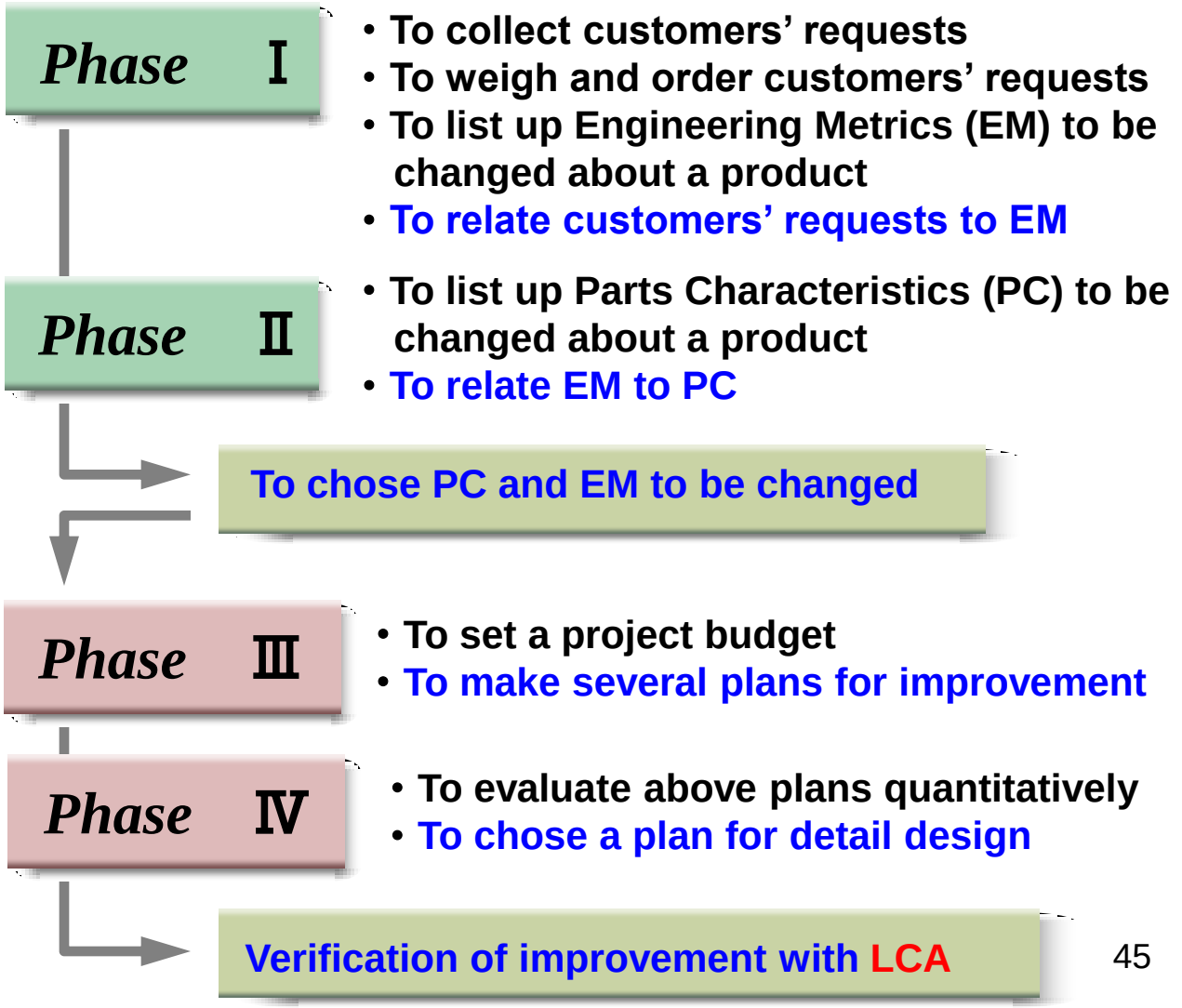


Four steps of QFDE

(Quality Function Deployment for Environment)

QFD considering Environmental Aspects (Quality Function Deployment)

Evaluation of improvement level of changes of design

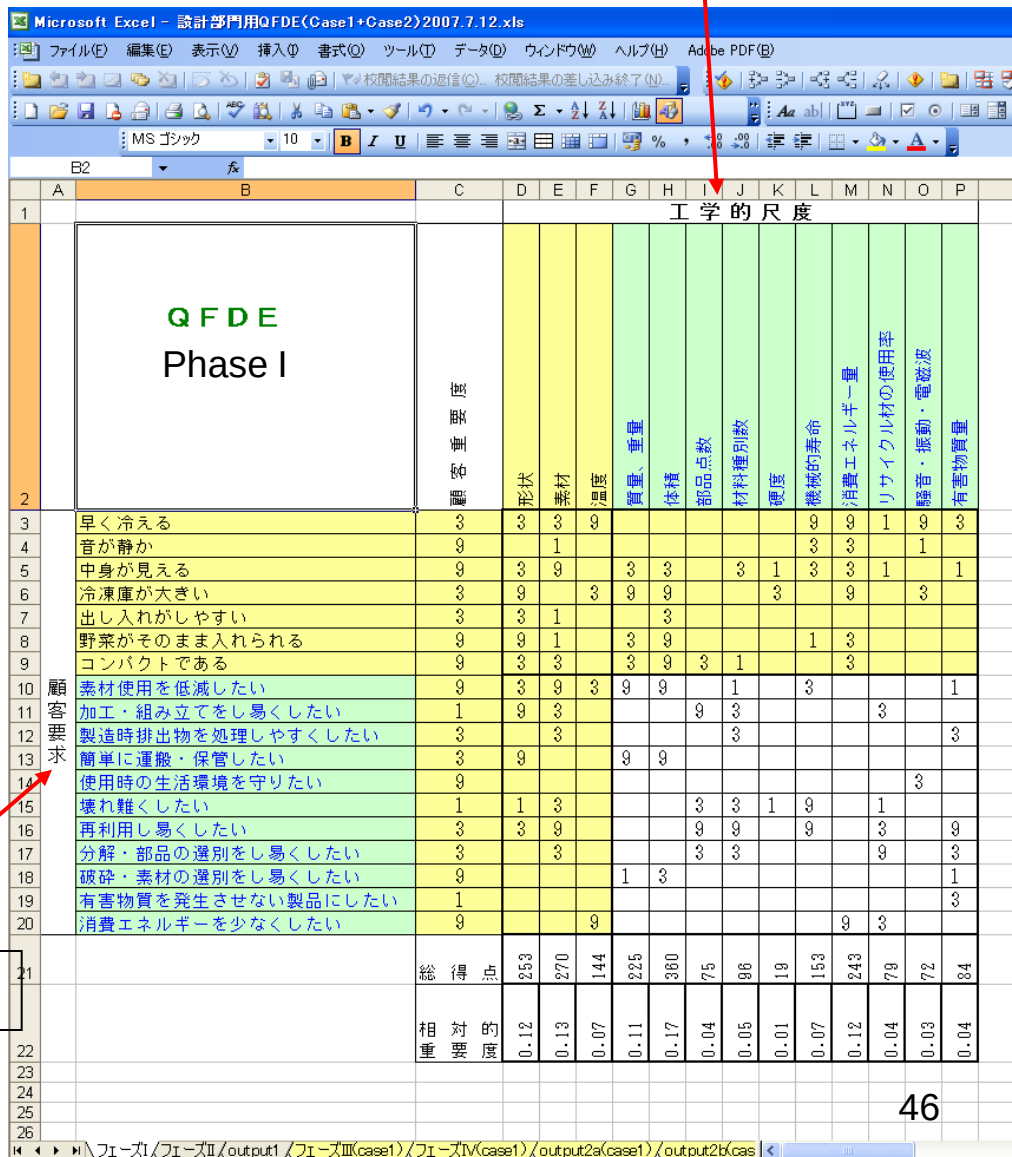


QFDE tool

Engineering Metrics（EM）

- ★ QFDE: Quality Function Deployment for Environment
- ★ QFDE is a tool that is developed to support designers at early stages of DfE for assembled products by modifying QFD.
- ★ MS-Excel based software.
- ★ Simple
- ★ Free of charge
- ★ Easy to add Customers' requests (Voice of Customers : VOC)

Customers' Requests

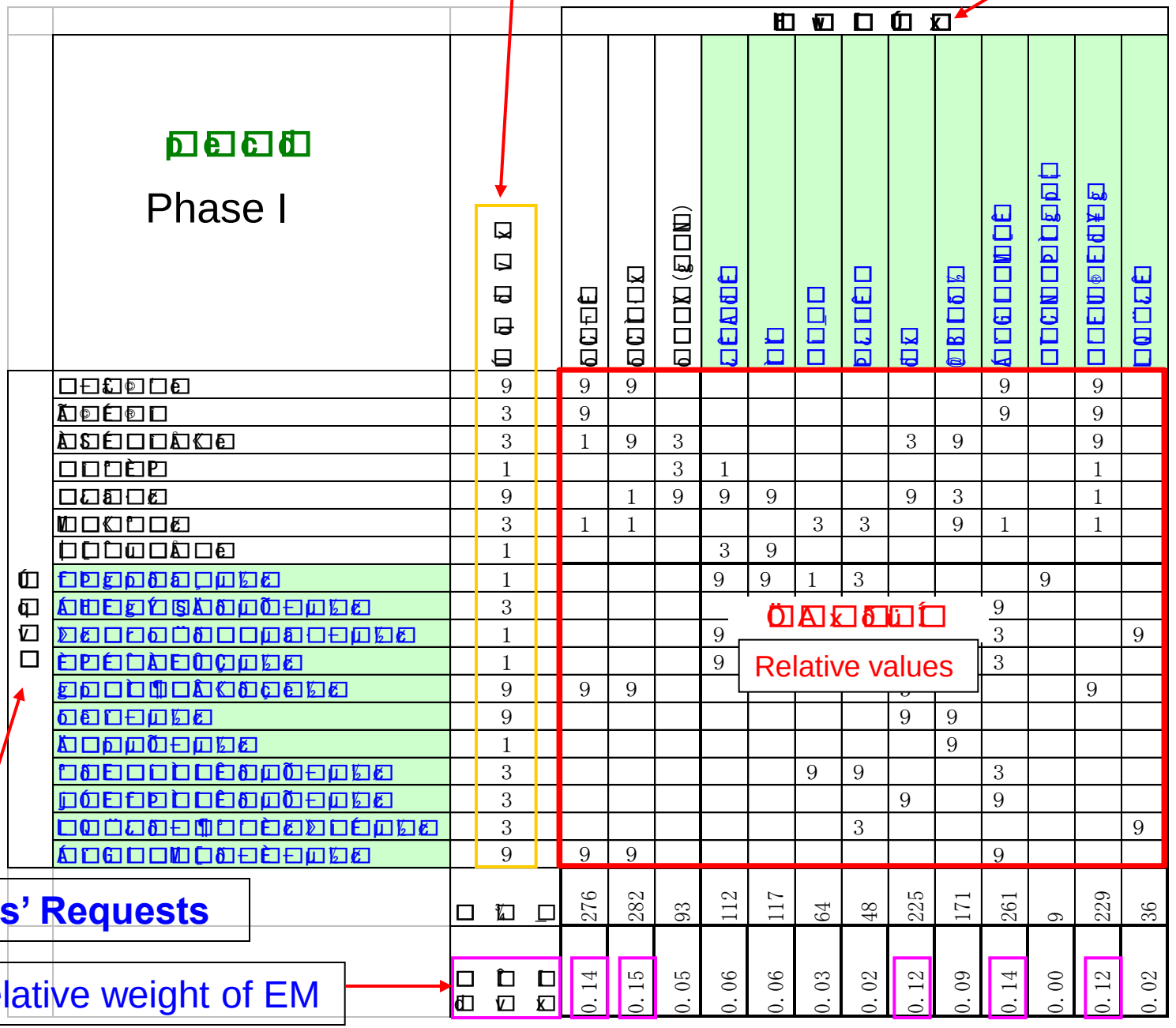


Example

Phase I

Weight of Customers' Requests

Engineering Metrics (EM)



Customers' Requests

Relative weight of EM

Example

Parts Characteristics (PC)

Phase II

		0.14	9	1	1	1	1
		0.15	3	3	9	1	1
		0.05	9	3			9
		0.06	9	3	3	1	9
		0.06	9	3	1	1	9
		0.03	1	1		1	9
		0.02					9
		0.12					9
		0.09					9
		0.14	9	1	9		
		0.00					9
		0.12	9	3			9
		0.02	9			3	1
			6.56	1.73	3.72	0.79	5.31
			0.36	0.10	0.21	0.04	0.29

Relative values

Engineering Metrics (EM)

Relative weight of PC

Phase III
Initial condition

Parts Characteristics (PC)

Improvement rate of EM

Engineering Metrics（EM)

Q F D E

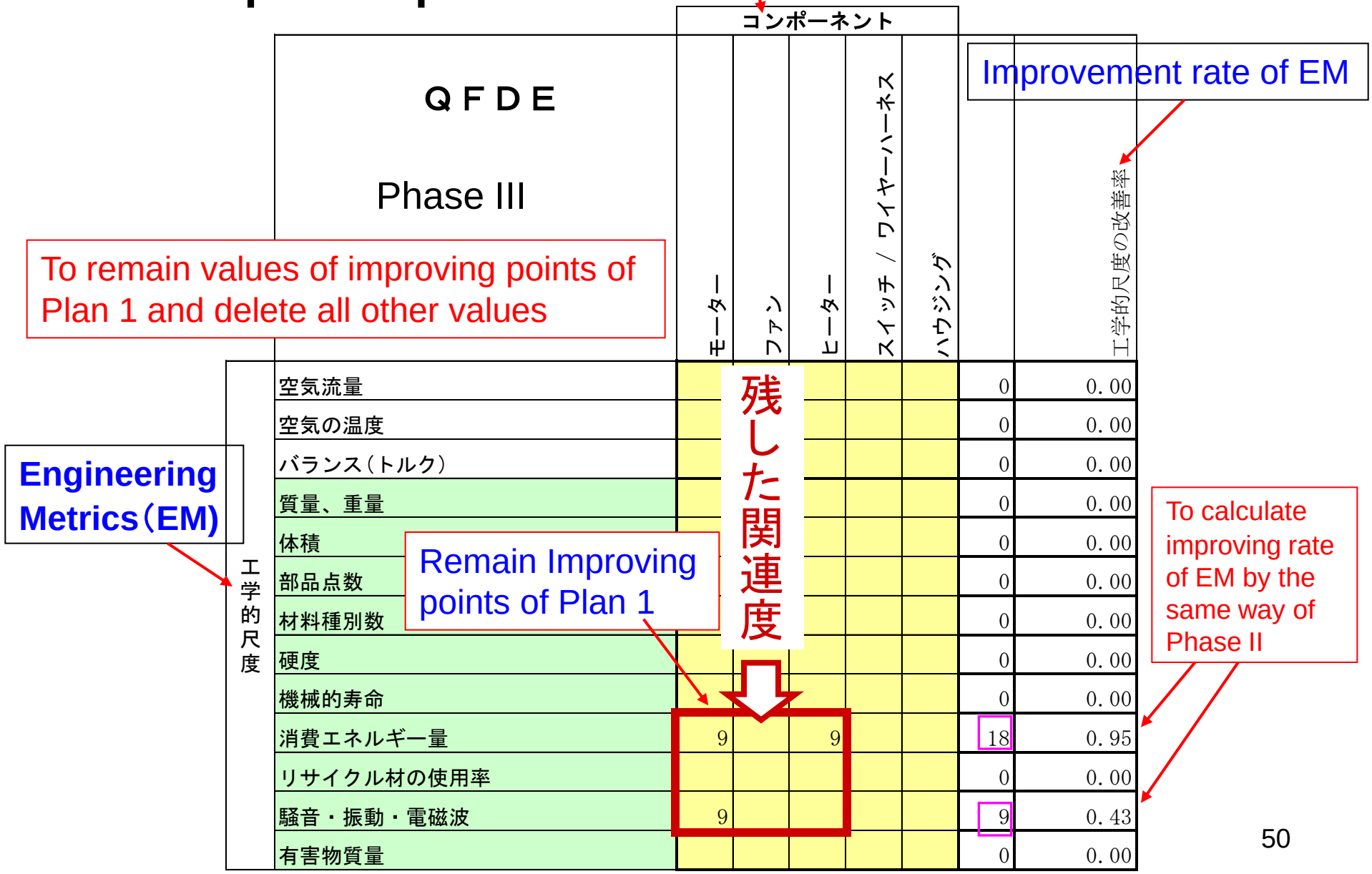
Phase III

工学的尺度	コンポーネント						
	モーター	ファン	ヒーター	スイッチ / ワイヤーハーネス	ハウジング		工学的尺度の改善率
空気流量	9	1	1	1	1	13	1.00
空気の温度	3	3	9	1	1	17	1.00
バランス（トルク）	9	3			9	21	1.00
質量、重量	9	3	3	1	9	25	1.00
体積	9	3	1	1	9	23	1.00
部品点数	1	1		1	9	12	1.00
材料種別数	1	1		1	9	12	1.00
硬度					9	9	1.00
機械的寿命	9	1	9	3	9	31	1.00
消費エネルギー量	9	1	9			19	1.00
リサイクル材の使用率					9	9	1.00
騒音・振動・電磁波	9	3			9	21	1.00
有害物質量	9			3	1	13	1.00

Improving points of Plan 1

Phase III
After input of plan 1

Parts Characteristics (PC)



Q F D E

Phase III

コンポーネント

工学的尺度	モーター	ファン	ヒーター	スイッチ／ワイヤーハーネス	ハウジング		工学的尺度の改善率
空気流量						0	0.00
空気の温度						0	0.00
バランス（トルク）						0	0.00
質量、重量						0	0.00
体積						0	0.00
部品点数						0	0.00
材料種別数						0	0.00
硬度						0	0.00
機械的寿命						0	0.00
消費エネルギー量	9		9			18	0.95
リサイクル材の使用率						0	0.00
騒音・振動・電磁波	9					9	0.43
有害物質量						0	0.00

残した関連度

Improvement rate of EM

To remain values of improving points of Plan 1 and delete all other values

Engineering Metrics（EM)

Remain Improving points of Plan 1

To calculate improving rate of EM by the same way of Phase II

Phase IV
Evaluation result of plan 1

Parts Characteristics (PC)

Improvement rate of Customers' Requests

Improvement score considering weights of Customers' requests

Customers' Requests

Weight of customers' request

ＱＦＤＥ

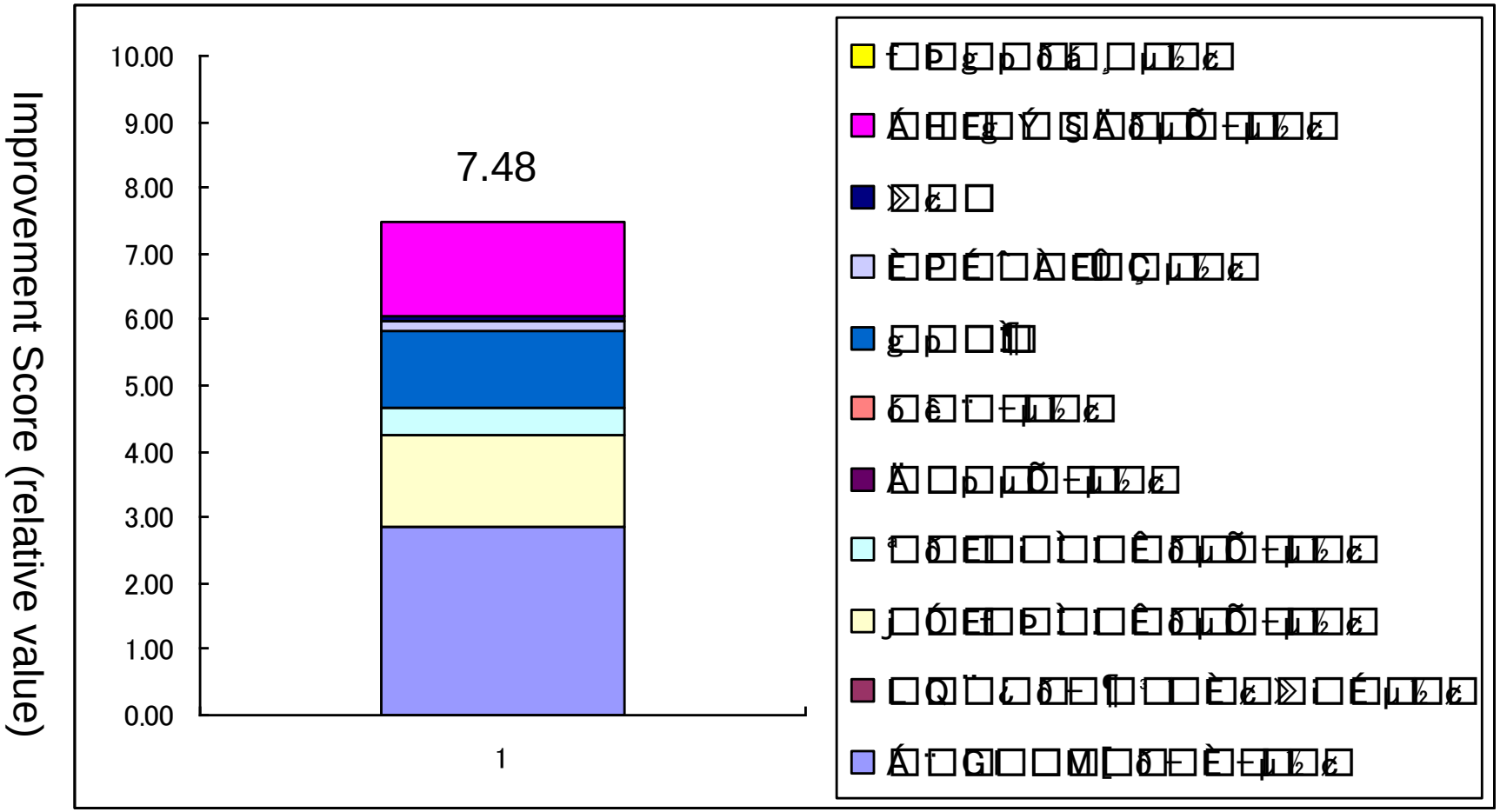
フェーズ Ⅳ

		顧客重要度	工学的尺度													顧客要求に対する改善率	顧客要求に対する改善効果
			空気流量	空気の温度	バランス（トルク）	質量、重量	体積	部品点数	材料種別数	硬度	機械的寿命	消費エネルギー量	リサイクル材の使用率	騒音・振動・電磁波	有害物質量		
顧客要求	早く乾かせる	9	9	9								9		9			
	静かに動作	3	9									9		9			
	安全に操作できる	3	1	9	3					3	9			9			
	操作が簡単	1			3	1								1			
	持ちやすい	9		1	9	9	9			9	3			1			
	信頼性が高い	3	1	1				3	3		9	1		1			
	ポータブルである	1				3	9										
	素材使用を低減したい	1				9	9	1	3				9			0.00	0.00
	加工・組み立てをし易くしたい	3						9				9				0.47	1.42
	製造時排出物を処理しやすくしたい	1				9	9					3			9	0.09	0.09
	簡単に運搬・保管したい	1				9	9					3				0.14	0.14
	使用時の生活環境を守りたい	9	9	9						3				9		0.13	1.16
	壊れ難くしたい	9								9	9					0.00	0.00
	再利用し易くしたい	1									9					0.00	0.00
	分解・部品の選別をし易くしたい	3						9	9			3				0.14	0.41
	破砕・素材の選別をし易くしたい	3								9		9				0.47	1.42
	有害物質を発生させない製品にしたい	3							3						9	0.00	0.00
	消費エネルギーを少なくしたい	9	9	9								9				0.32	2.84
	工学的尺度の改善率		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.43	0.00		
	合計値															1.76	7.48

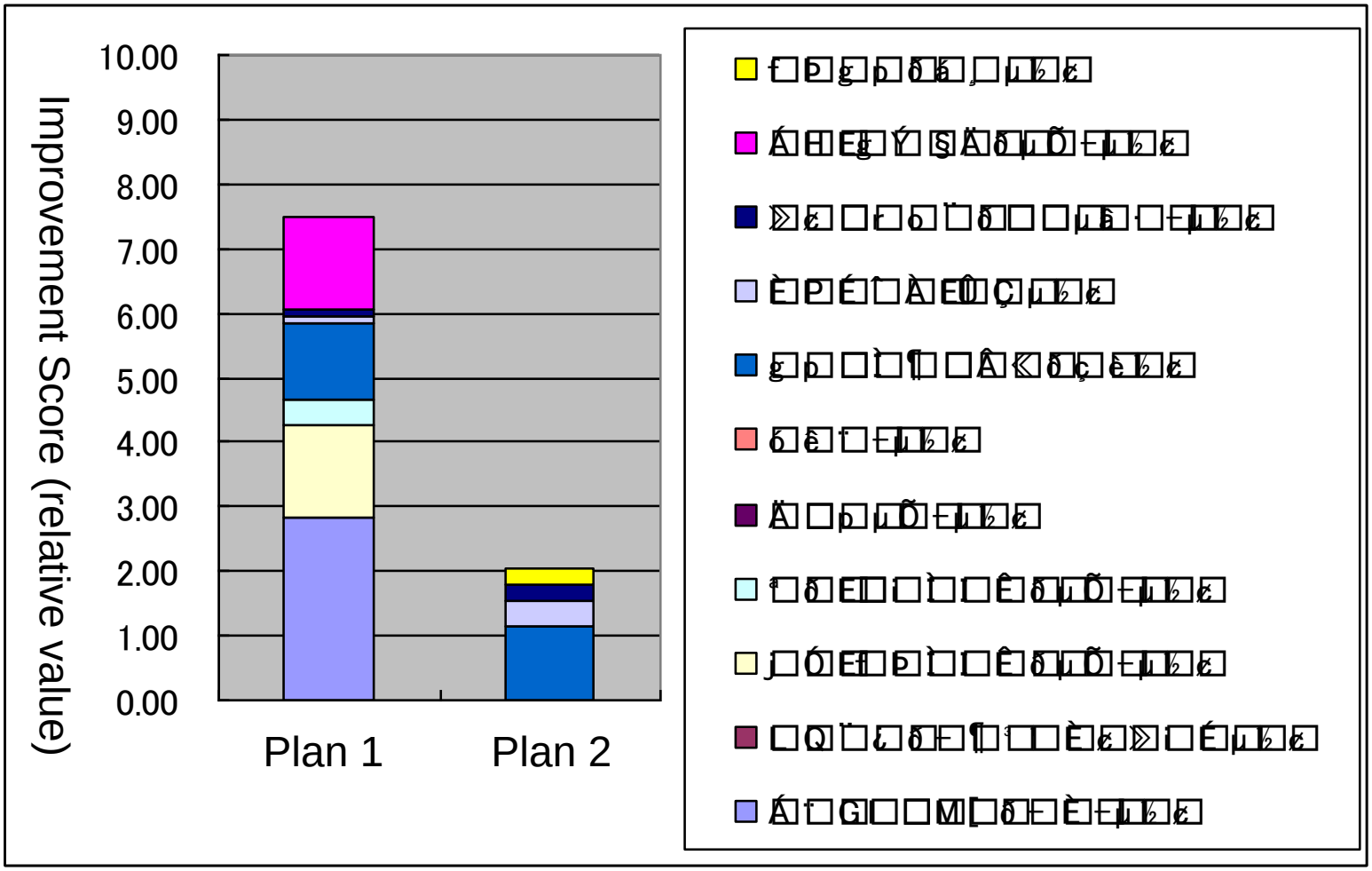
Grand total

Improvement rate of EM

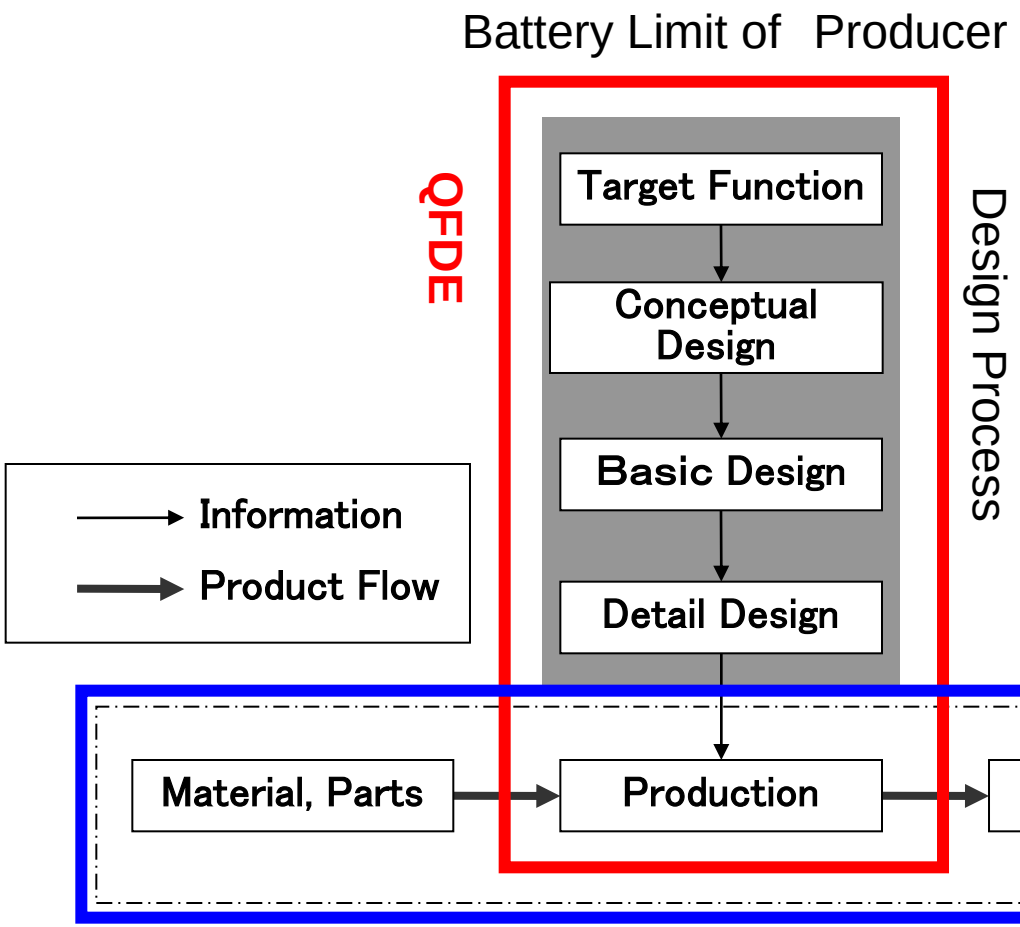
Improvement score of Plan 1 considering weights of customers' requests for environment



Comparison of improvement scores between Plan 1 and Plan 2



New Design Tools for Eco-Product

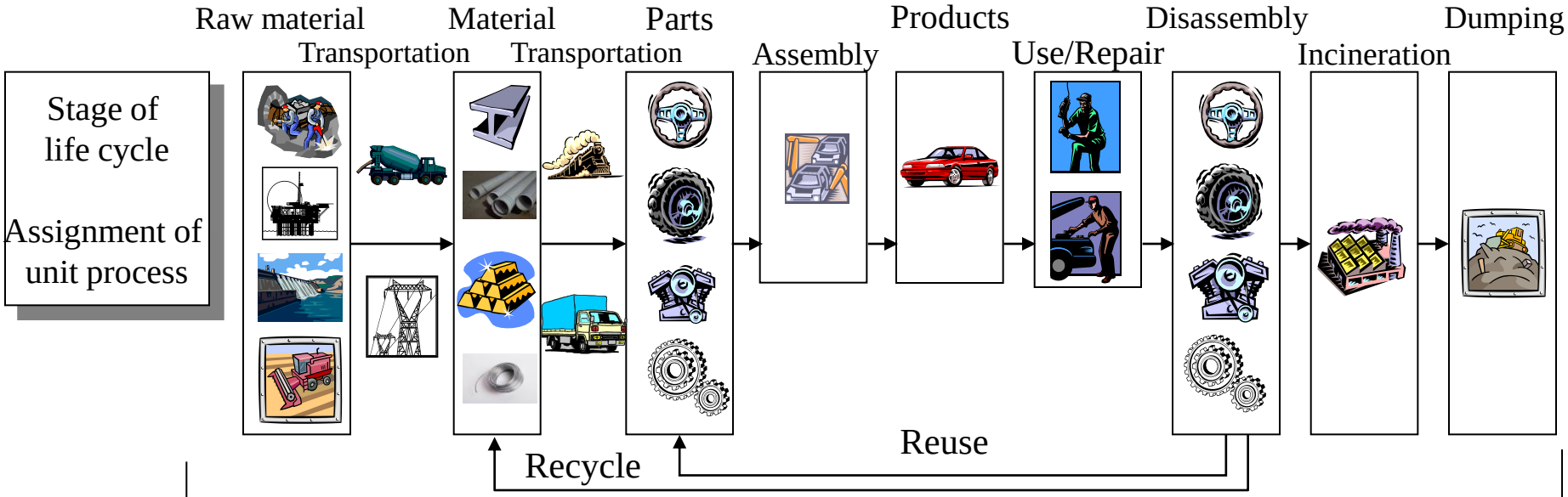


Feature of Existing Design Tools

- Few design tools which can apply to the beginning stage of design (conceptual design).
- Few design tools which can introduce customers' requests into products directly.
- Introduction of new design tools during design process may interrupt and/or change design concepts and cause delay of development schedule.

Basic Concept of LCA

Quantitative method to calculate consumption of natural resources and emission amount of pollutants and to evaluate environmental impacts to the earth and ecosystems through the life cycles of products



Calculation of environmental loads through life cycle

CO_2 SO_2 NOx → Emission to the air

TN, TP Heavy metals → Discharge to the water

Assessment of environmental impacts

Grobal warming

Water pollution/ eutrophication

Health damage

Acid rain

Utilization of assessment

Identification of severer environmental problems

Improvement of eco-efficiency

Comparative evaluation of products

Usefulness of LCA

Preservation of global environment

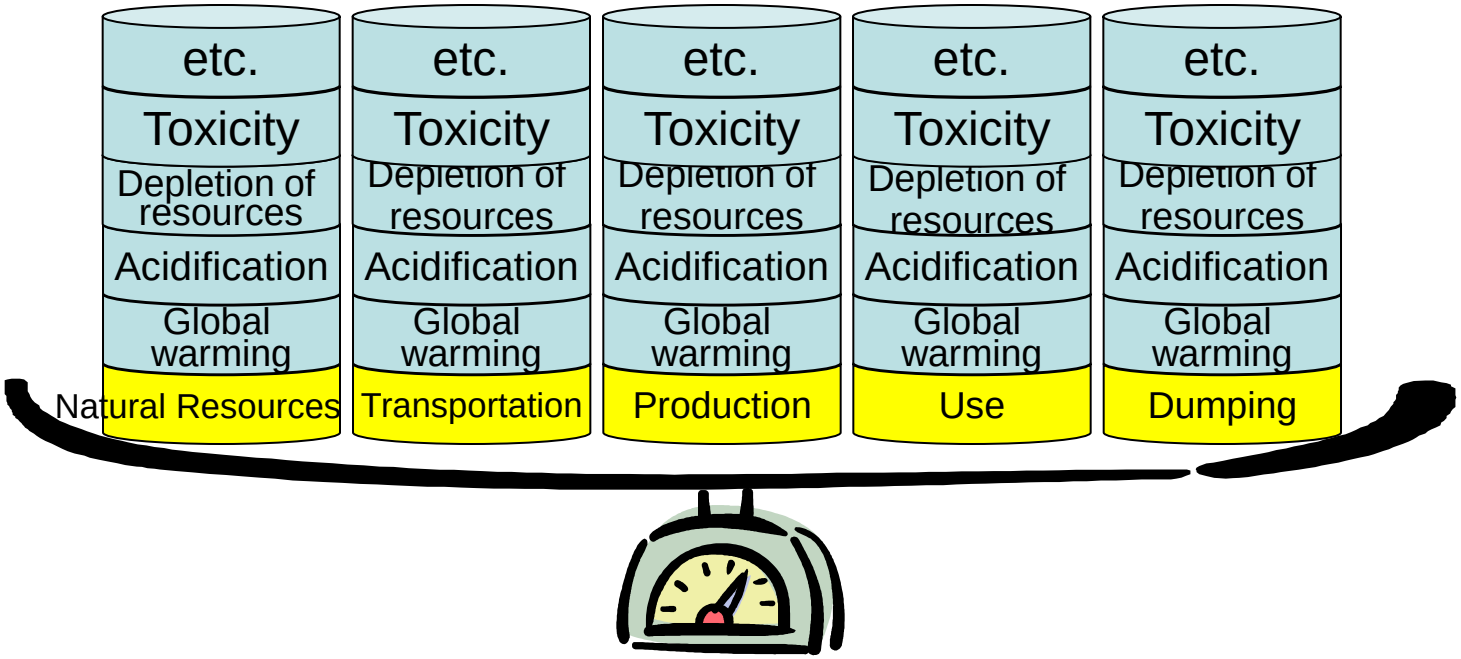
Establishment of material-cyclic society

What is Life Cycle Assessment

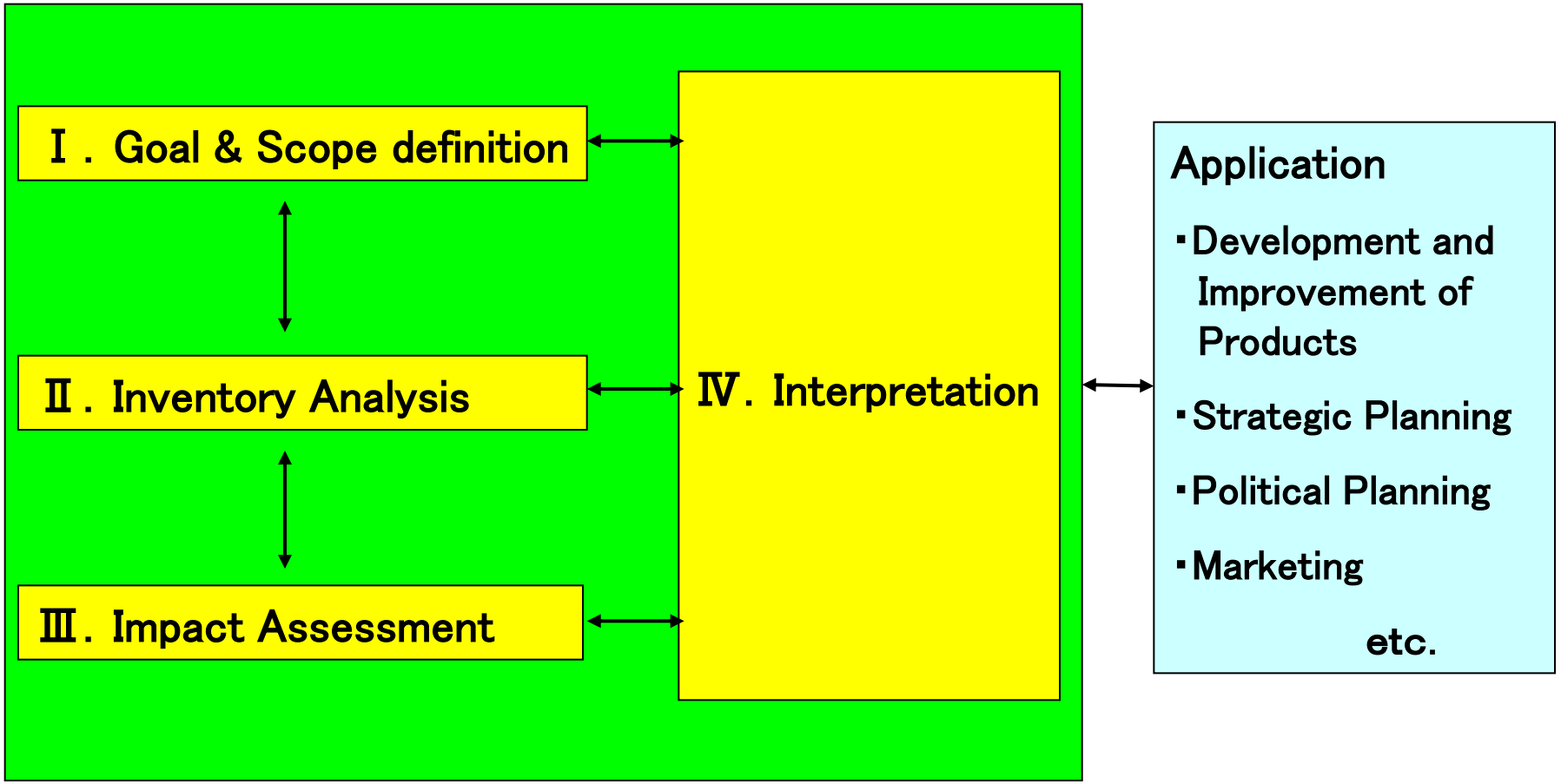
LCA（Life Cycle Assessment）is the method to evaluate environmental impacts of products and services through their life cycle (from the cradle to the grave).

Support the sustainable development of the society

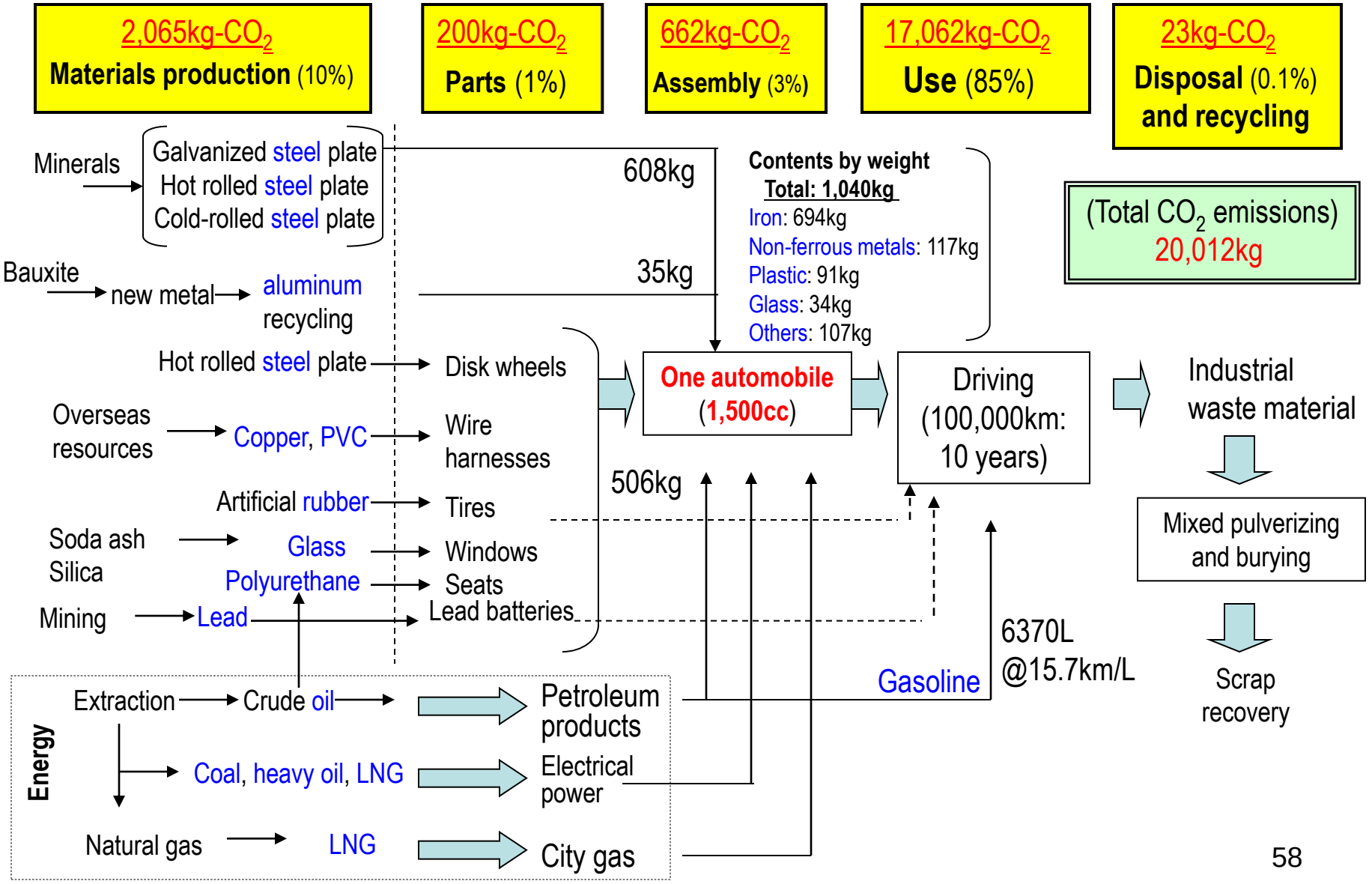
What is to evaluate life cycle,



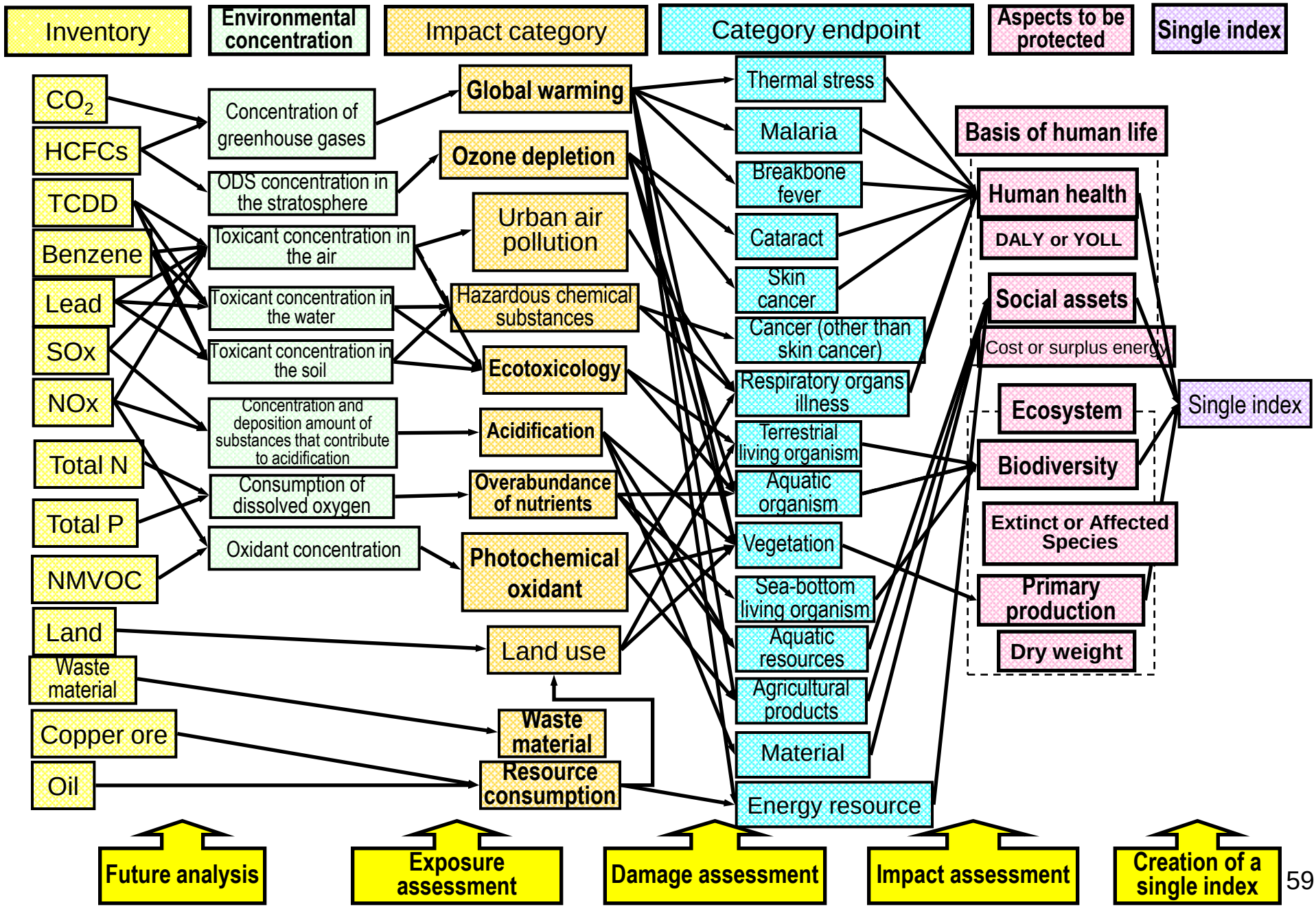
Basic Way of Thinking on LCA Methodology (ISO14040)



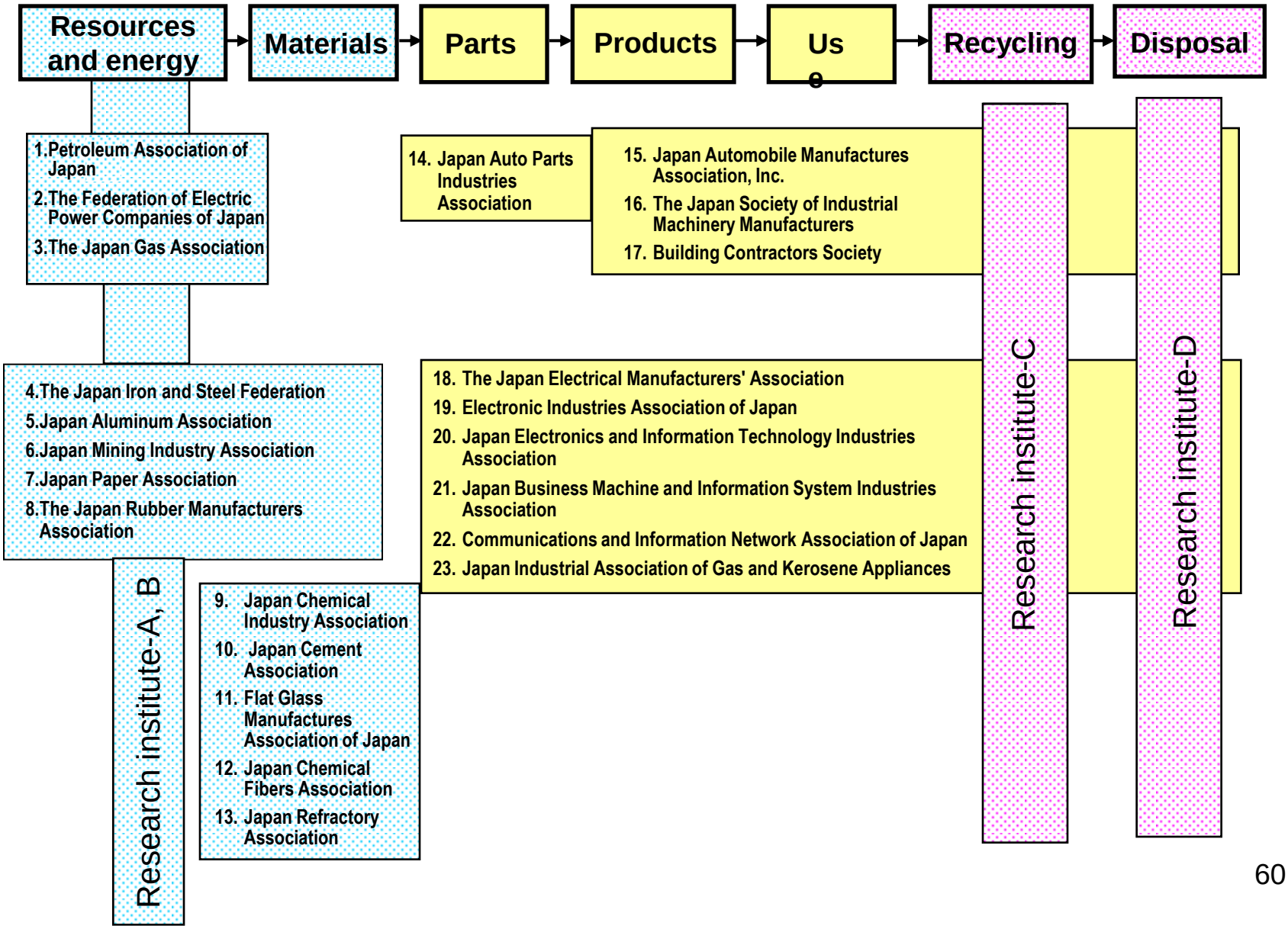
Example: Linkage of automobile inventory data and quantities of CO_2 emissions at various stages (Rough Estimation)



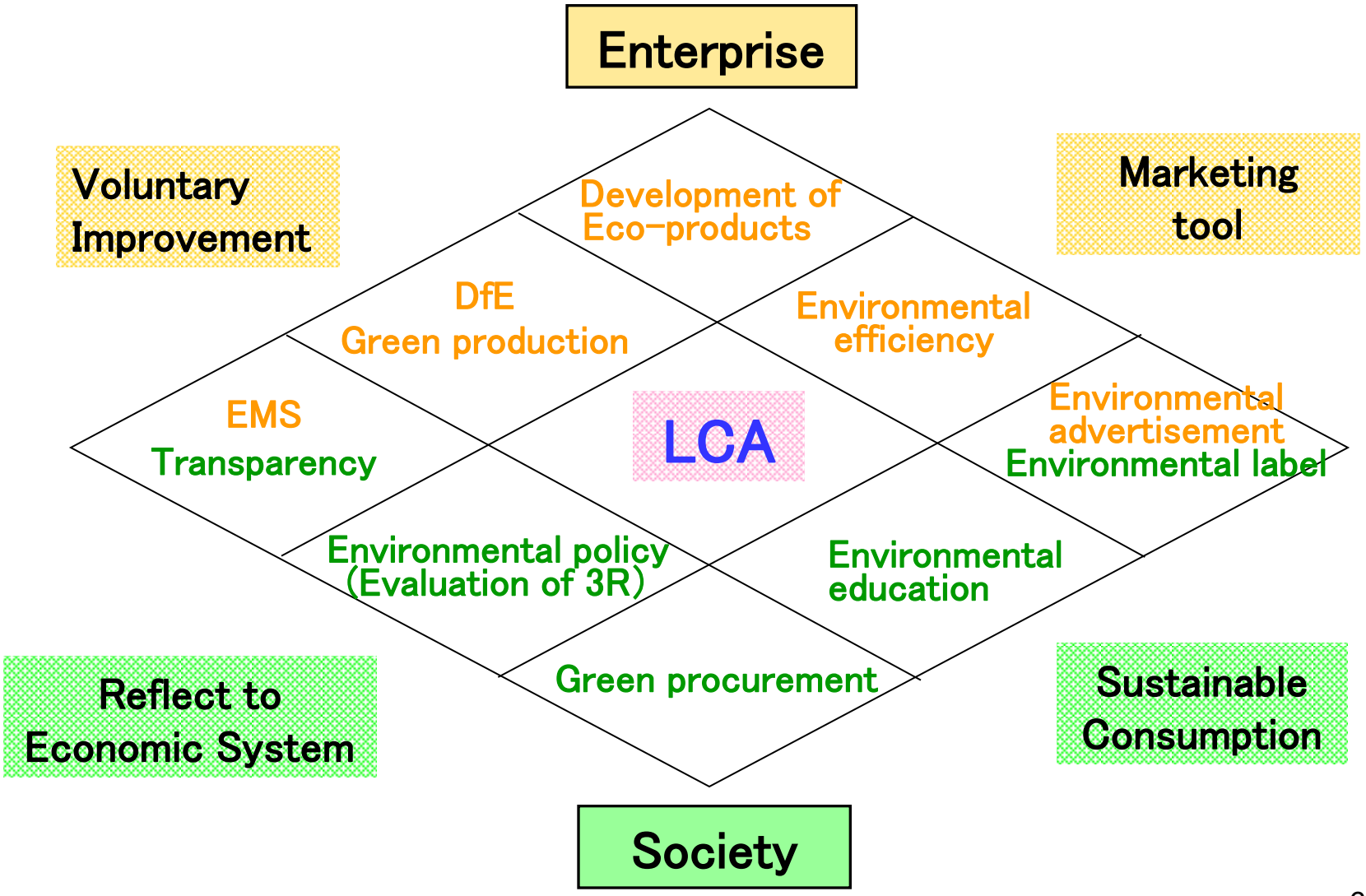
Overview of the damage-calculation type impact assessment system



Main industrial associations participated in the LCA project



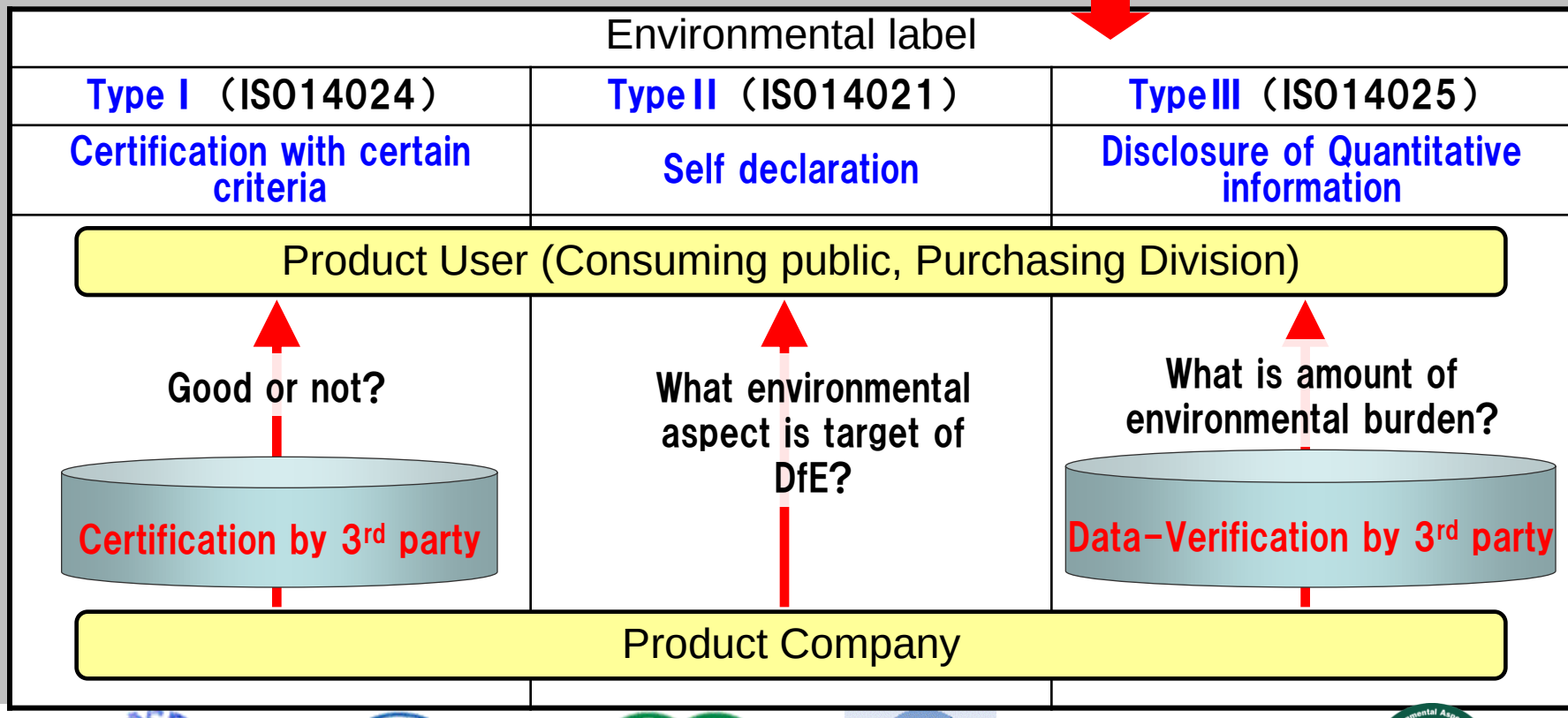
Utilization of LCA



Environmental Labels

Index of product choice

Performance + Price + Function + Design + Environmental information + ...



Eco Mark (Japan)

Blue angel (Germany)

Canon (Japan)

Hitachi (Japan)

SWE-EPD (Sweden)

Eco-Leaf (Japan)

Examples of Environmental Label (Type I)

Thai Green Label (Thailand)

Ecomark Scheme (India)

Green Mark Program (Taiwan)

Eco-label (Japan)

Green seal (U.S)

EU ecolabel (EU)

Environmental Label (S. Korea)

Blue Angel (Germany)

Environmental Choice(Canada)

Nordic Swan

EcoLeaf Label

EcoLeaf

- ✓**Japanese ISO-Type III environmental label**
- ✓**Quantitative LCA data of a product**
- ✓**Based on a Product Category Rule (PCR)**

Product Environmental Aspects Declaration

ECO LEAF 製品環境情報 http://www.jemai.or.jp

Telephone (PSC No.AY-03)

No. AY-06-024

Panasonic ideas for life

http://panasonic.jp/phone/

Panasonic Communications Co., Ltd.
Corporate Environmental Affairs Division
TEL 81-92-477-1860 FAX 81-92-477-3285

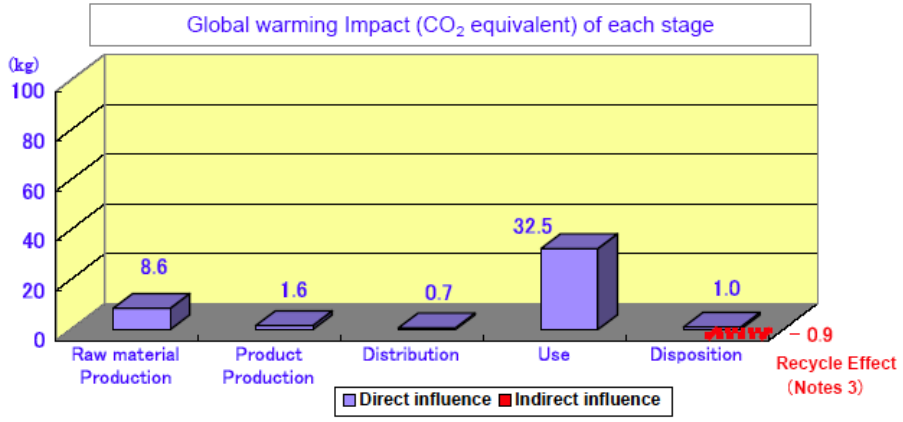
VE-GP31D

Product Specification
- Personal use
- Base Unit 1set 600g

Life Cycle Impacts

	Total,alls tage
Global warming(CO_2 equivalent)	44.4 kg(43.5 kg)
Acidification(SO_2 equivalent)	0.057 kg(0.056 kg)
Energy Consumption	927 MJ(915 MJ)

* The inside of a parenthesis shows the environmental load containing Recycle Effect. (Notes 3)



The main part of telephone, manuals, accessories, packing material, and the set box are contained in the range for public presentation.
The calculation conditions of a use stage are usable-years five years, are telephone call time 30 minutes per day, and are ring time 1 minute per day.

Notes:

Constitution of EcoLeaf Label

① Product Environmental Aspects Declaration

①製品環境情報

製 品 環 境 情 報
Product Environmental Aspects Declaration

ECO LEAF 製品環境情報 http://www.jemai.or.jp

Konica
http://www.konica.co.jp

環境に関するお問い合わせは…
コニカビジネスマシン(株)
環境対策推進室
TEL. 03-3241-8551
FAX. 03-3242-2235
E-mail: info@konica-kbj.co.jp

デジタルモノセオプションです。

乾式間接静電式複写機

Sitios 7045

No. AA-02-001

複写速度	45枚／分(A4)
最大コピー用紙	A3
両面コピー	ノンスタックADU標準装備
原稿送り	原稿自動反転機能付ADFを装備

ライフサイクルでの消費・排出

温暖化負荷(CO_2換算)	酸性化負荷(SO_2換算)	エネルギー使用量
1.294kg	1.9kg	28,300MJ

温暖化負荷(CO_2換算)

●使用条件は、5年間で96万枚です。

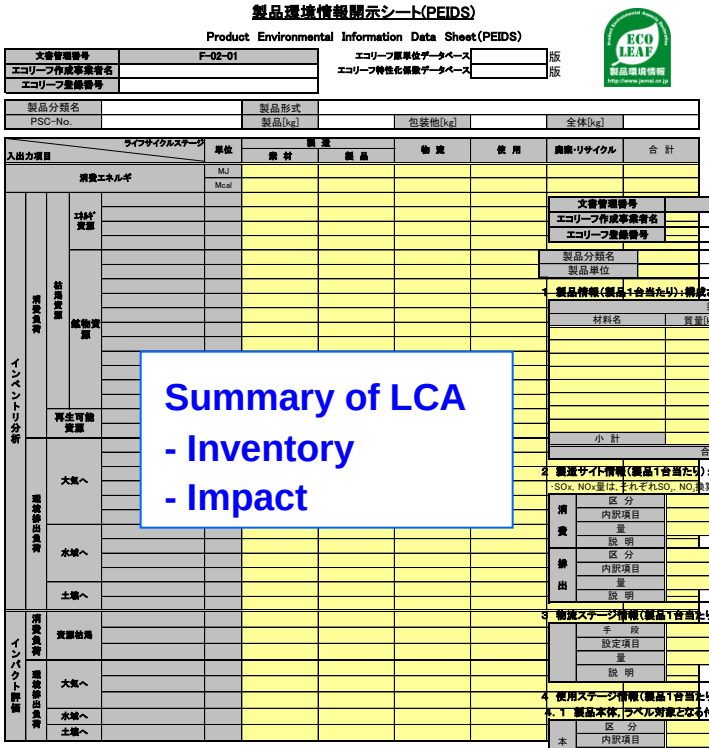
(注) 詳しくは、製品環境情報開示シート(PEIDS)、製品データシートをご覧ください。
データ算出のための統一基準は、製品分類別基準（PSC）をご参照ください。

【その他環境関連情報】

●この複写機及び消耗材料は、環境マネジメントシステムの国際規格であるＩＳＯ１４００１取得サイトで生産されています。
●他の環境ラベル取得情報
・「エコマーク事務局認定・エコマーク商品」
・「国際エネルギースタープログラム登録商品」
・「ブルーエンジェルマーク認定商品」
●グリーン購入法判断基準および配慮事項に適合しています。
●外装プラスチック部品は廃棄や焼却をされてもダイオキシンなどの元になる物質および重金属（鉛、カドミウム、水銀、六価クロム）を使用しておりません。

② Product Environmental Information Data Sheet (PEIDS)

②製品環境情報開示シート



製品環境情報開示シート(PEIDS)

Product Environmental Information Data Sheet(PEIDS)

文書管理番号	F-02-01
エコリーフ作成事業者名	
エコリーフ登録番号	

エコリーフ原単位データベース 版
エコリーフ特性化係数データベース 版

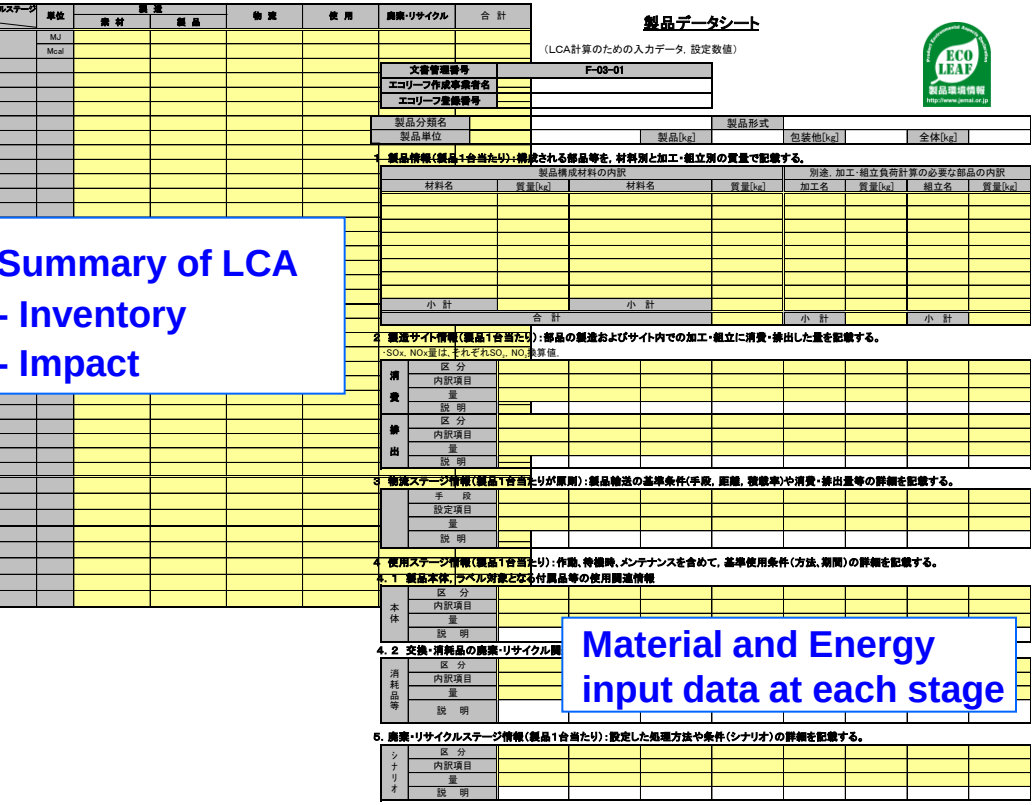
製品分類名		製品形式	
PSC-No.		製品[kg]	包装他[kg]	全体[kg]

ライフサイクルステージ / 入出力項目		単位	製造 素材	製造 製品	物流	使用	廃棄・リサイクル	合 計
消費エネルギー		MJ						
		Mcal						
インベントリ分析	消費資源	エネルギー資源						
		鉱物資源						
		再生可能資源						
	環境負荷排出量	大気へ						
		水域へ						
		土壌へ						
インパクト評価	消費負荷	資源枯渇						
	環境影響排出負荷	大気へ						
		水域へ						
		土壌へ						

Summary of LCA
- Inventory
- Impact

③ Product Data Sheet

③製品データシート



製品データシート

(LCA計算のための入力データ、設定数値)

文書管理番号	F-03-01
エコリーフ作成事業者名	
エコリーフ登録番号	

製品分類名		製品形式	
製品単位		製品[kg]	包装他[kg]	全体[kg]

1. 製品情報(製品1台当たり):構成される部品等を、材料別と加工・組立別の質量で記載する。

製品構成材料の内訳				別途、加工・組立負荷計算の必要な部品の内訳			
材料名	質量[kg]	材料名	質量[kg]	加工名	質量[kg]	組立名	質量[kg]
小 計		小 計					
合 計				小 計		小 計	

2. 製造サイト情報(製品1台当たり):部品の製造およびサイト内での加工・組立に消費・排出した量を記載する。
・SOx、NOx量は、それぞれSO_2、NO_2換算値。

消費	区 分								
	内訳項目								
	量								
	説 明								
排出	区 分								
	内訳項目								
	量								
	説 明								

3. 物流ステージ情報(製品1台当たりが原則):製品輸送の基準条件(手段、距離、積載率)や消費・排出量等の詳細を記載する。

	手 段								
	設定項目								
	量								
	説 明								

4. 使用ステージ情報(製品1台当たり):作動、待機時、メンテナンスを含めて、基準使用条件(方法、期間)の詳細を記載する。
4. 1 製品本体、ラベル対象となる付属品等の使用関連情報

本体	区 分								
	内訳項目								
	量								
	説 明								

4. 2 交換・消耗品の廃棄・リサイクル関

消耗品等	区 分								
	内訳項目								
	量								
	説 明								

5. 廃棄・リサイクルステージ情報(製品1台当たり):設定した処理方法や条件(シナリオ)の詳細を記載する。

シナリオ	区 分								
	内訳項目								
	量								
	説 明								

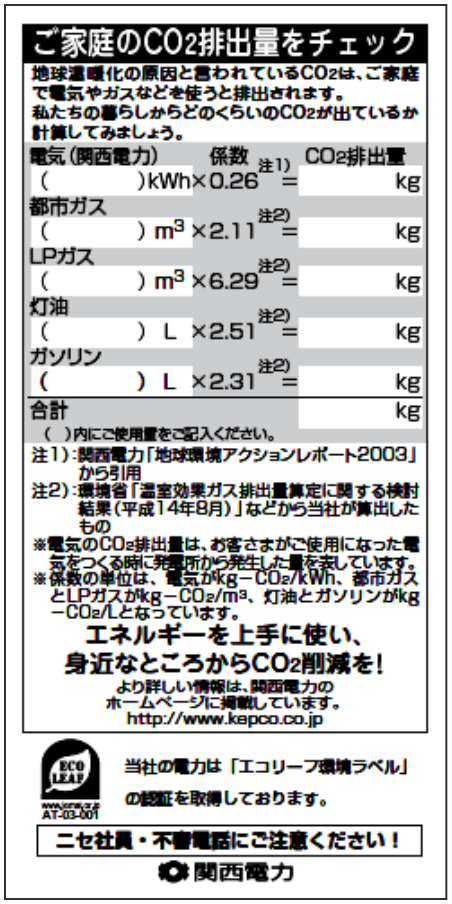
6. その他

Material and Energy input data at each stage

Examples of EcoLeaf Label Indication
(To raise up corporate image)

Visiting card

Invoice of electric power consumption

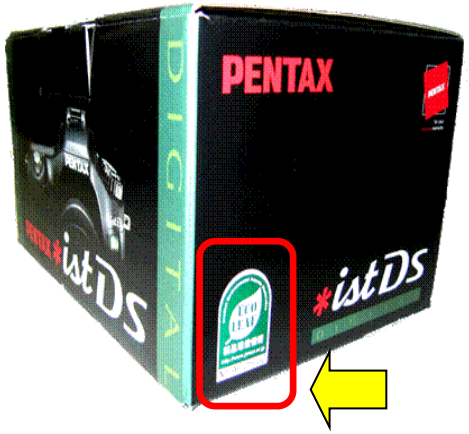


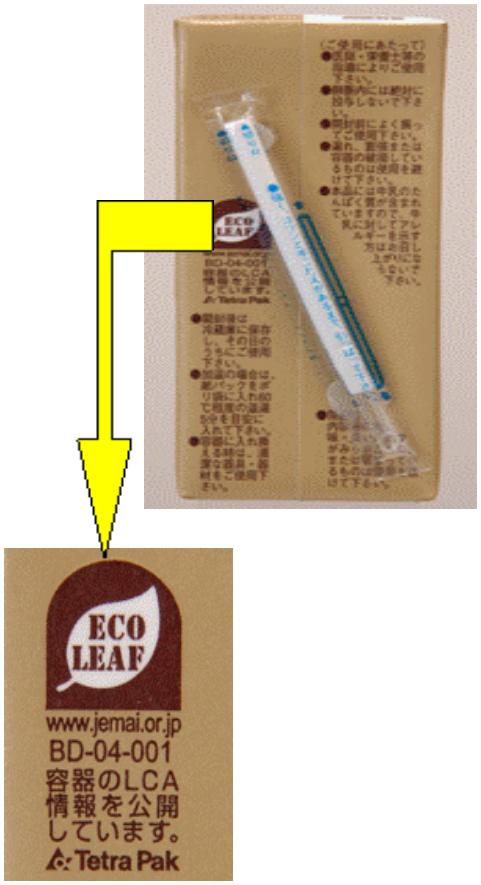
Menu board at a taking-out food shop

Examples of EcoLeaf Label Indication
(To raise up product image)

Packaging box **Paper container of milk** **Picture book**

製品包装



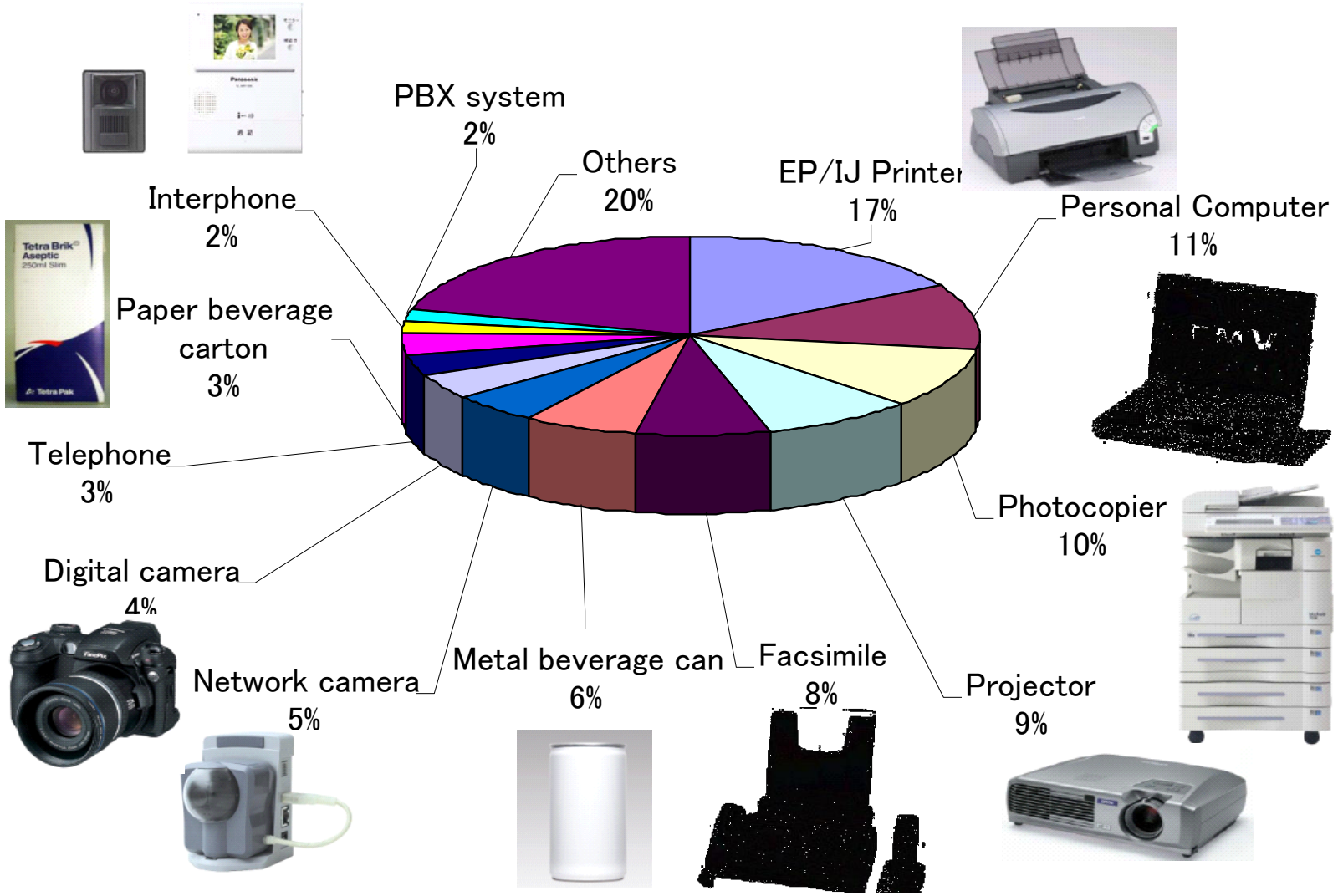


（出展：小学館編、環境館））

Current status of EcoLeaf

- Current ratio by product category-

As of Oct. 2007

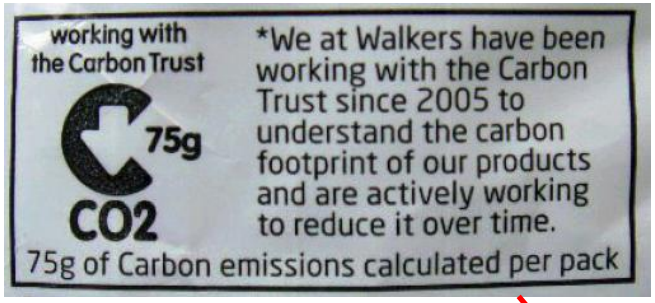


Carbon Foot-Print

- To estimate total global warming gas emission through the life cycle of a product, from the cradle to the grave, and convert it into the amount of CO2 ⇐ LCA
- To represent by weight of CO2 on a product and/or on a packaging in order to be easily understood the effort of a producer against global warming.
- To be utilized by consumers to chose more environmental friendly product among those having same function and price
- To promote the effort of CO2 emission reduction by producers through the supply chain of business
- To apply to carbon offset initiative as an exact emission amount of CO2

Example

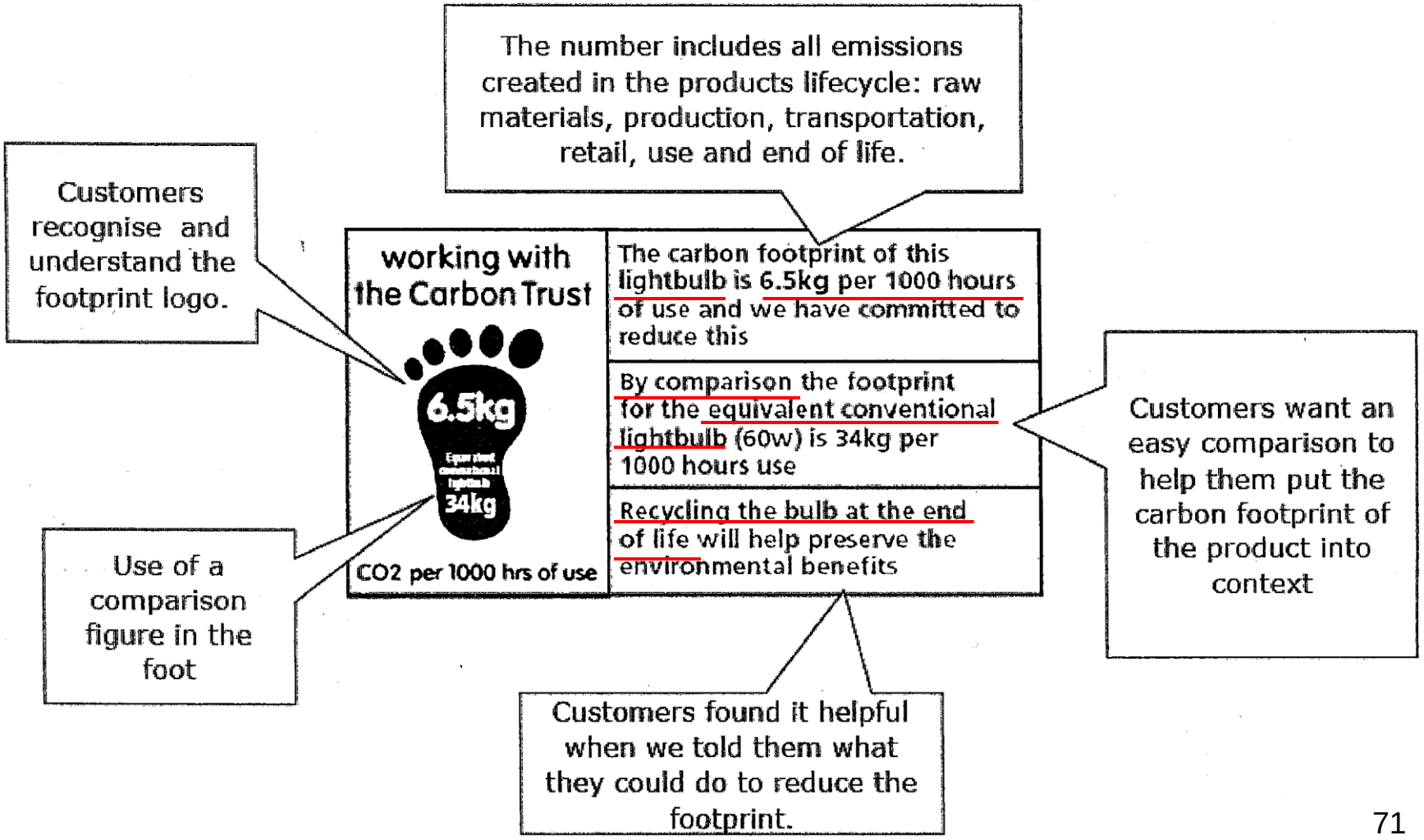
Carbon Foot-Print



Breakdown of 75g- CO2

Cultivation of potato: 44%
Production : 30%
Packaging :15%
Transportation : 9%
Waste : 2%

Example : CFP mark of The Carbon Trust (UK)



Environmental Exhibition

No. of Exhibitors and No. of Guests								
	1999	2000	2001	2002	2003	2004	2005	2006
No. of Exhistors	288	305	350	370	416	453	502	572
No. of Guests	47,449	67,838	88,604	100,483	114,060	124,829	140,461	152,966

Scene of Exhibition

Opening Ceremony

Symposium

Environmental Communication

Environmental Education for School Children

Thank you for your attention !!