The LCA Data Library
- A result of National LCA Project in Japan-

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Background of the LCA project

		Main activities
1995	October	Establishment of LCA Japan Forum
1997	June	Proposal for national LCA proect
	August	Informal decision of project establishment to Government
1998	April	Settlement of LCA development Division in JEMAI
		Concrete plan of the new project
	October	Contract of the commission research between NEDO and JEMAI
		Development of assessment technology of life cycle environment impacts of products
		Start of national LCA project
2003	March	Sumamry of the project
2003	August	Start of trial open of the LCA databese (Library) to February, 2004

Policy Statement on LCA

June 1997, LCA Japan Forum

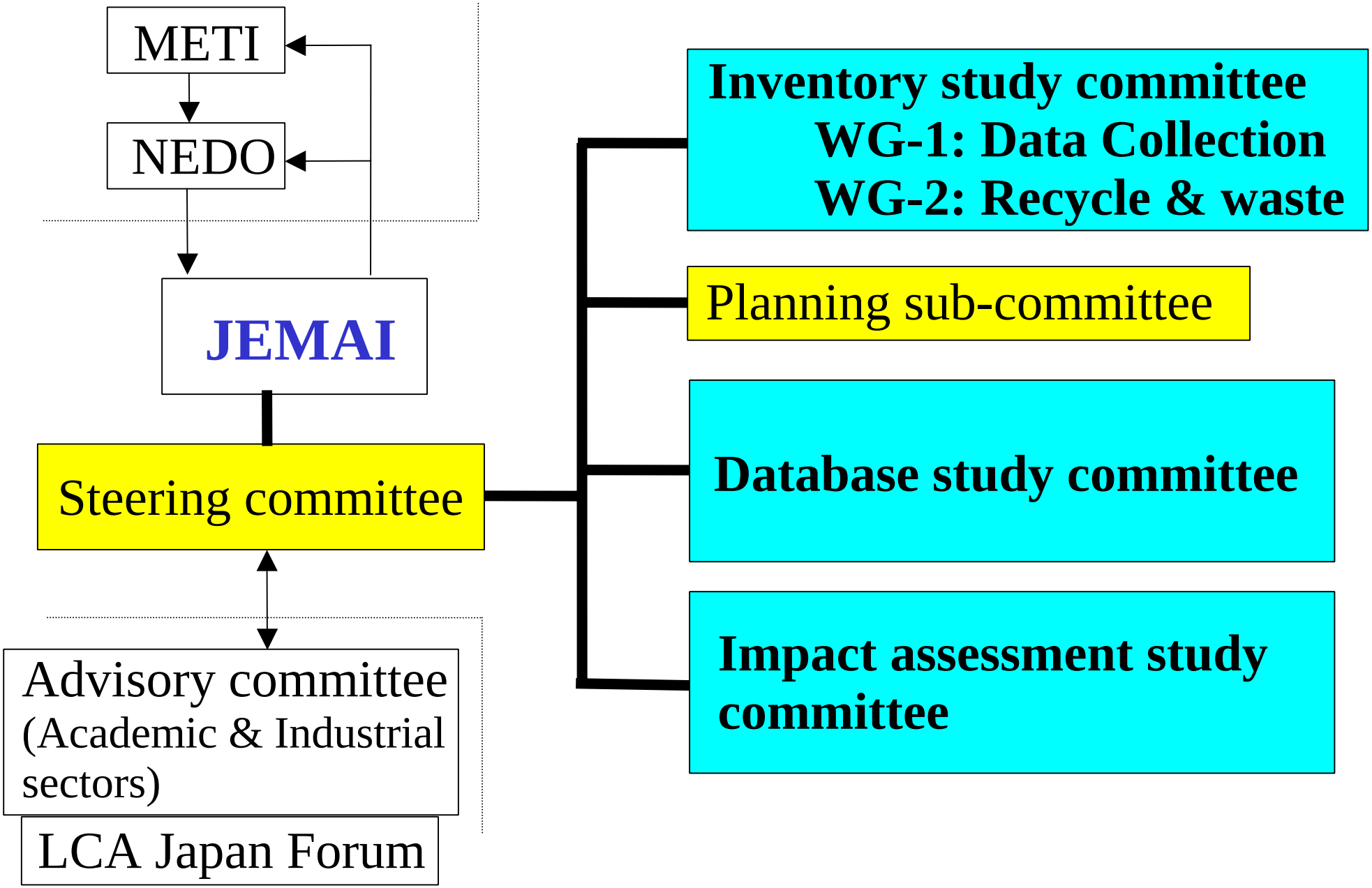
1. Industries should positively apply the concept of LCA for their management
2. Development of LCA methodology and database, LCA application, and recognition as the reliable tool for environmentally conscious evaluation are inevitable for “Sustainable development”
3. General organization should be established to deal with the standard LCA database
4. Under the present conditions, it is very risky to apply the LCA for decision making of complicated matter
5. Government should supply the infrastructures of LCA for citizens to implement the Eco-Life

Objectives of the LCA project in Japan

To develop the followings which can be applied commonly in Japan:

1. LCA methodologies;
   Practical LCI method especially for recycling.
   LCIA method based on endpoint modelling.
2. LCI data collection by industrial associations.
3. A network system to show above results.

Organization of the LCA project



Inventory study committee

WG-1: Inventory data collection

Transparent and reliable LCI data of around 250 industrial products were collected voluntarily by 22 industrial associations of the committee and 34 industrial associations joined in the project.

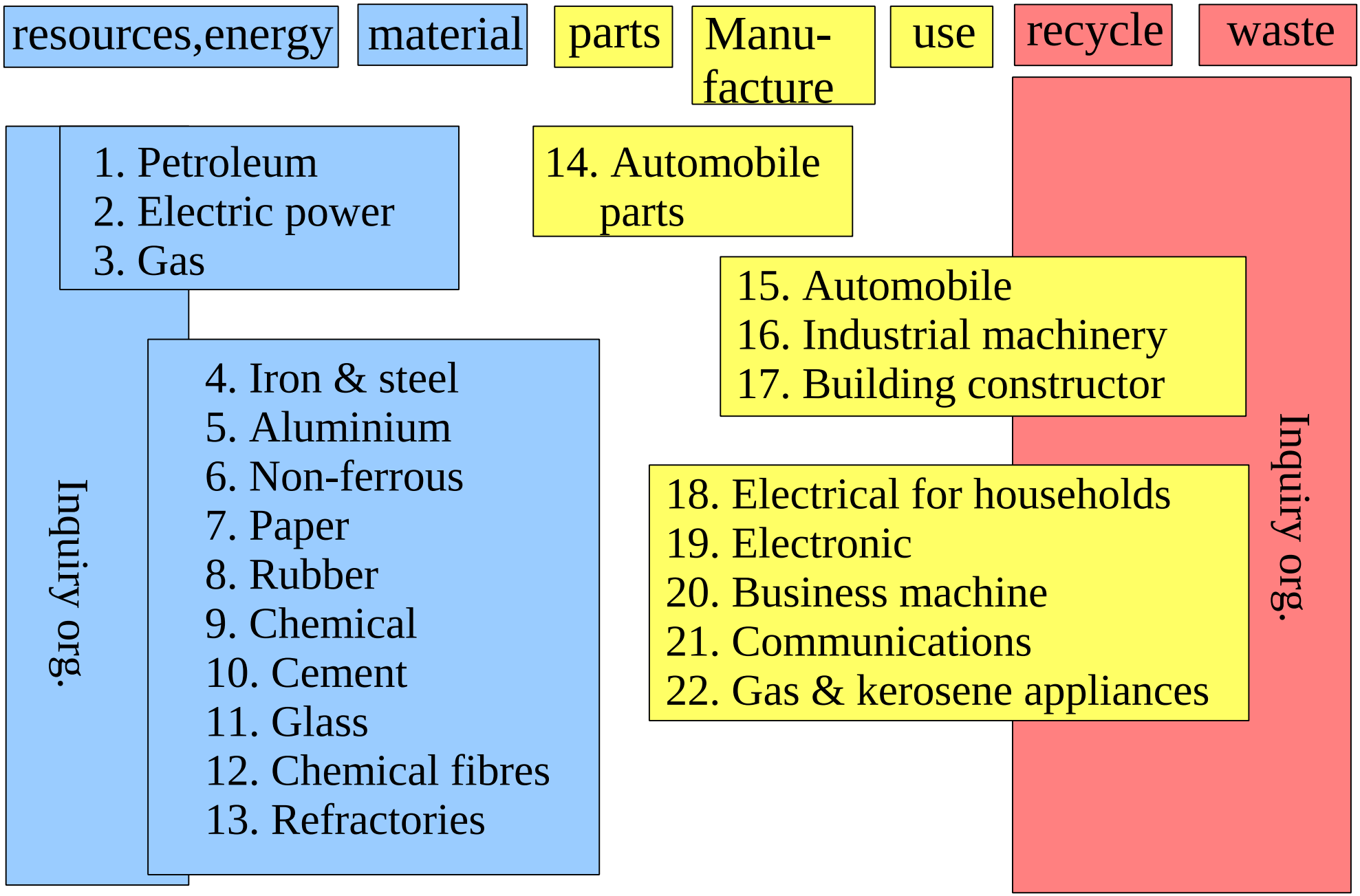
System boundary: "Gate to Gate" .

Inventory: 14 substances

(air) CO_2, CH_4, HFC, PFC, N_2O, SF_6, NO_x, SO_x, dust

(water) BOD, COD, total P, total N, SS

Members of industrial associations



Members of inventory data collecting

Members of committee

Gas
Petroleum
Electric power
Iron and steel
Aluminum
Non-ferrous matals
Glass
Paper
Refractories
Cement
Chemical
Chemical fibers
Rubber
Automobiles
Automobile parts
Business machine
Electrical for households
Communications
Electronic
Gas and kerosene appliance
Industrial machinery
Building constractor

Additional members of data collecting industry

Limestone mining
Glass fiber

Stainless steel — Electric Arc Furnace
Batteries — Electric wire & cables
Railway transport

Resinoid — Chemical products
Carbon black — Printing ink
PolyVinylCholoride — Aclylonitrile
Chloro-carbon — Synthetic rubber
Petrochemical — ABS resin
Urea & ammonium — Emulsion
Titanium dioxide — Soda
Industrial gases — Engineering plastics
Soap and detergent — Aromatic
Paint — Urethane row materials
Expandeed PS — Methacrilate Resin
Plastic Waste Management
Methanol-formaldehyde
Sulfuric acid

Fineceramics
Titanium

Constructing procedure of inventory database

Year	Inventory committee		Database committee
	WG-1	Task group	
'98	1. Basic plan of data collecting 2. Data format	1.Preparation for LCI guidline	1. Basic plan of database system
'99	3. Arrengement of data items for each industry association	2. LCI data collecting guideline 3. Collecting trial 4. Instructing caravan to association	2. Data input software 3. Data input manual
'00	4. Data collecting by each industry assoc.		4. Data supplying server
01~'02	5. Data check and case study 6. Revise the data		5. Complete the database system 6. Total system trial

Examples of inventory data of the project

Gas	Town gas	LNG		
Petroleum	heavy oil A	heavy oil C (low S)	Naptha	Diesel
	Crude oil	heavy oil C (high S)		
Electricity	Grid Mix			
Aluminum	Al pipe	Al sheet	Al foils	Al paste
Chemaical	PET	PS	PP	PVC
Iron & Steel	Shapes	Plate	bars	Zn coated sheet
	Weld pipes	Tin free steel	Tin plate	Ni-based stainless
Glass	Plate glass			
Cement	Portland cement	BF cement	Fly ash cement	
Refractories	Burned refractories	Monolithic refractories		
Chemical fibres	polyester fibers	Tire cord		
Non-ferrous metal	Copper	Lead	Zinc	
Rubber	Tire for automobile	Tire for truck	Tire for bike	
Paper	Paper	Board		
Building constructor	Business office			
Gas & kerosene appliances	Oven	Fan heater	Water heater	Stove
Industrial machinery	Pump	Blower		
Automobile	Automobile (1500CC)			
Automobile parts	Fuel tunk	Brakes	Car air-conditioner	Drive shaft
Business machine	Copying machine			
Electronic	Color TV	Desk top PC	Laptop PC	
Communications	Handy phone			

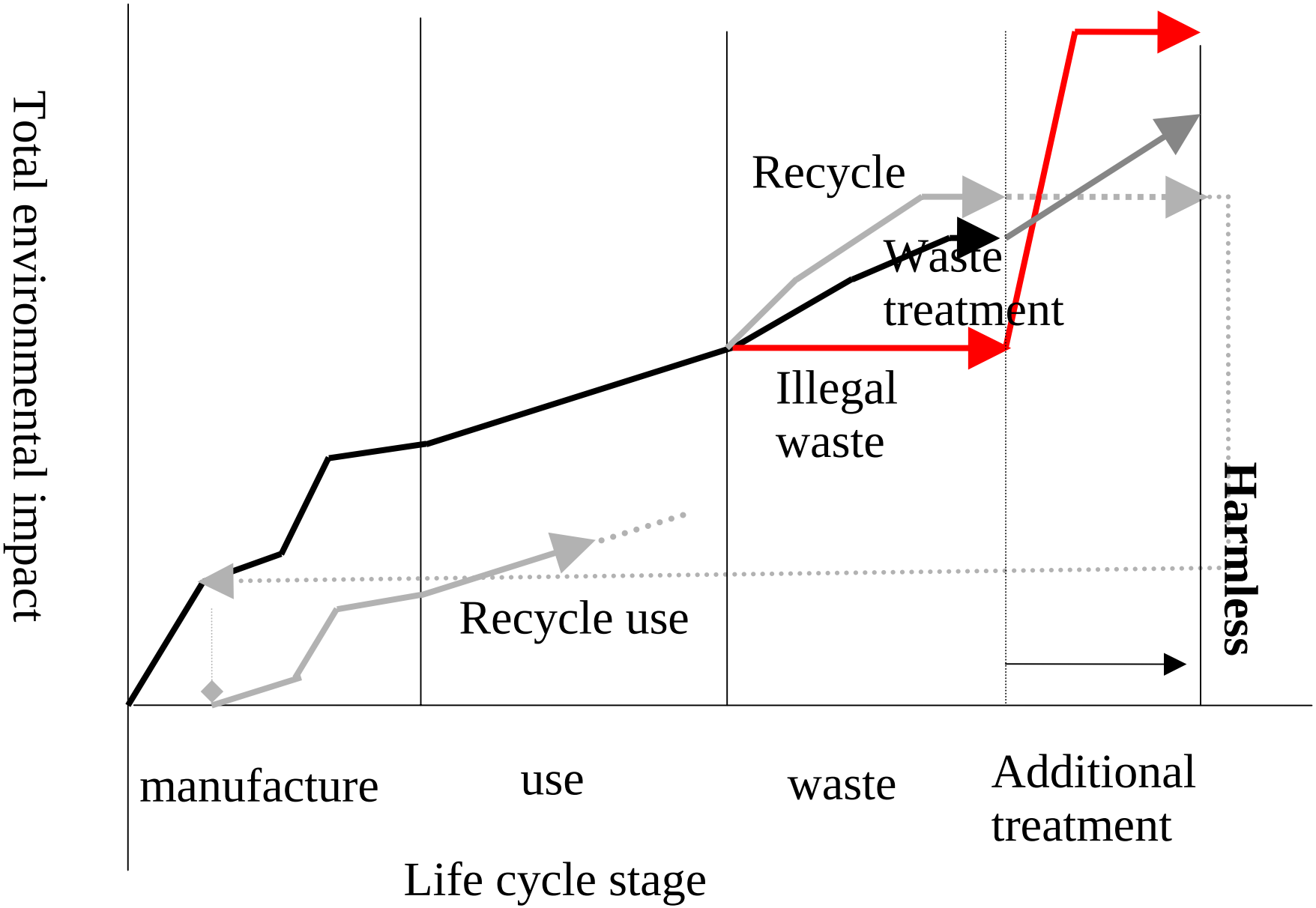
Inventory study committee

WG-2: LCI Method for Recycle and Waste

1. Development of LCI method for recycling and waste treatment processes.
2. Survey of material flows recycled and wasted.
3. Development of the model to evaluate

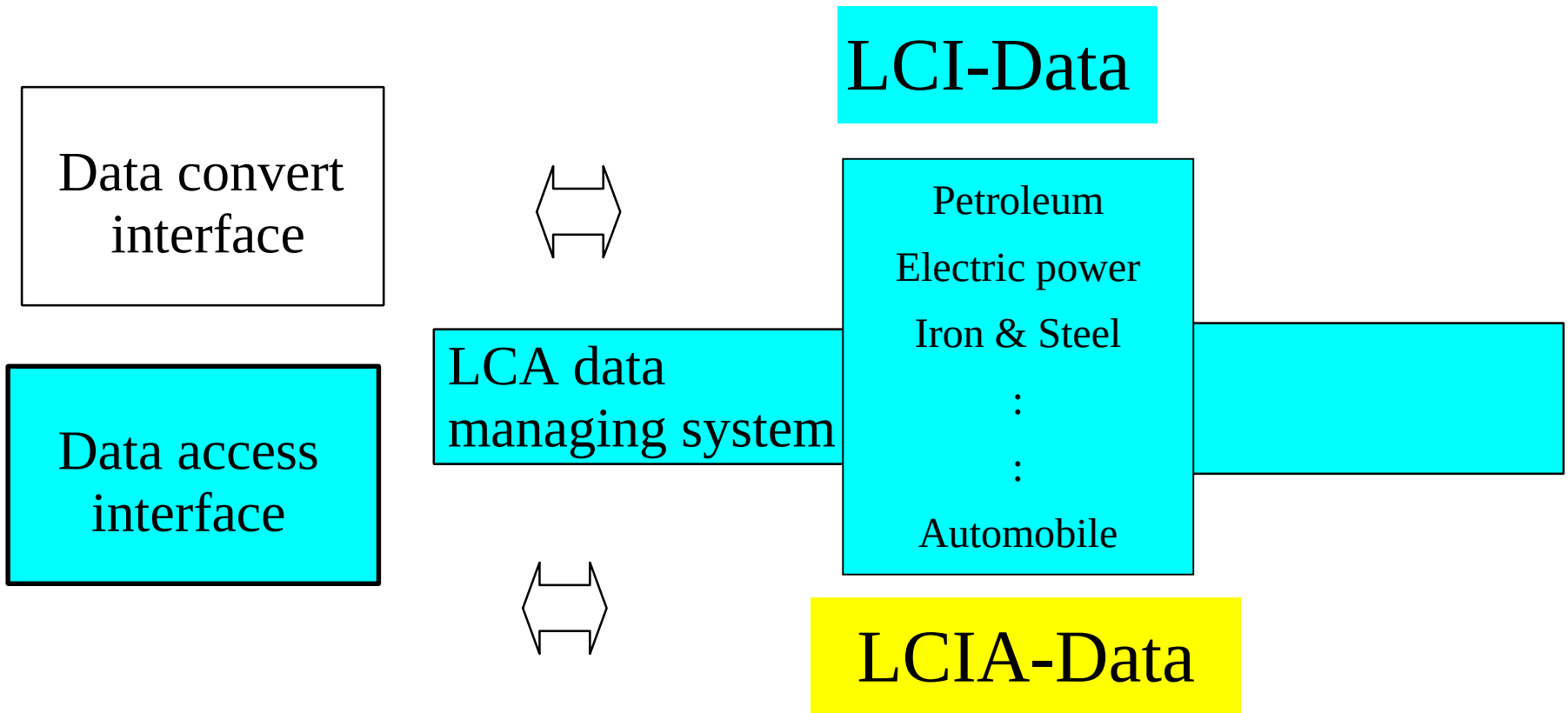
   Environmental load for the final disposal

LCI model of waste management stage



Database Study Committee

(1) Database system (management, searching etc.)
(2) Interface for users
(3) Specification of conversion filter

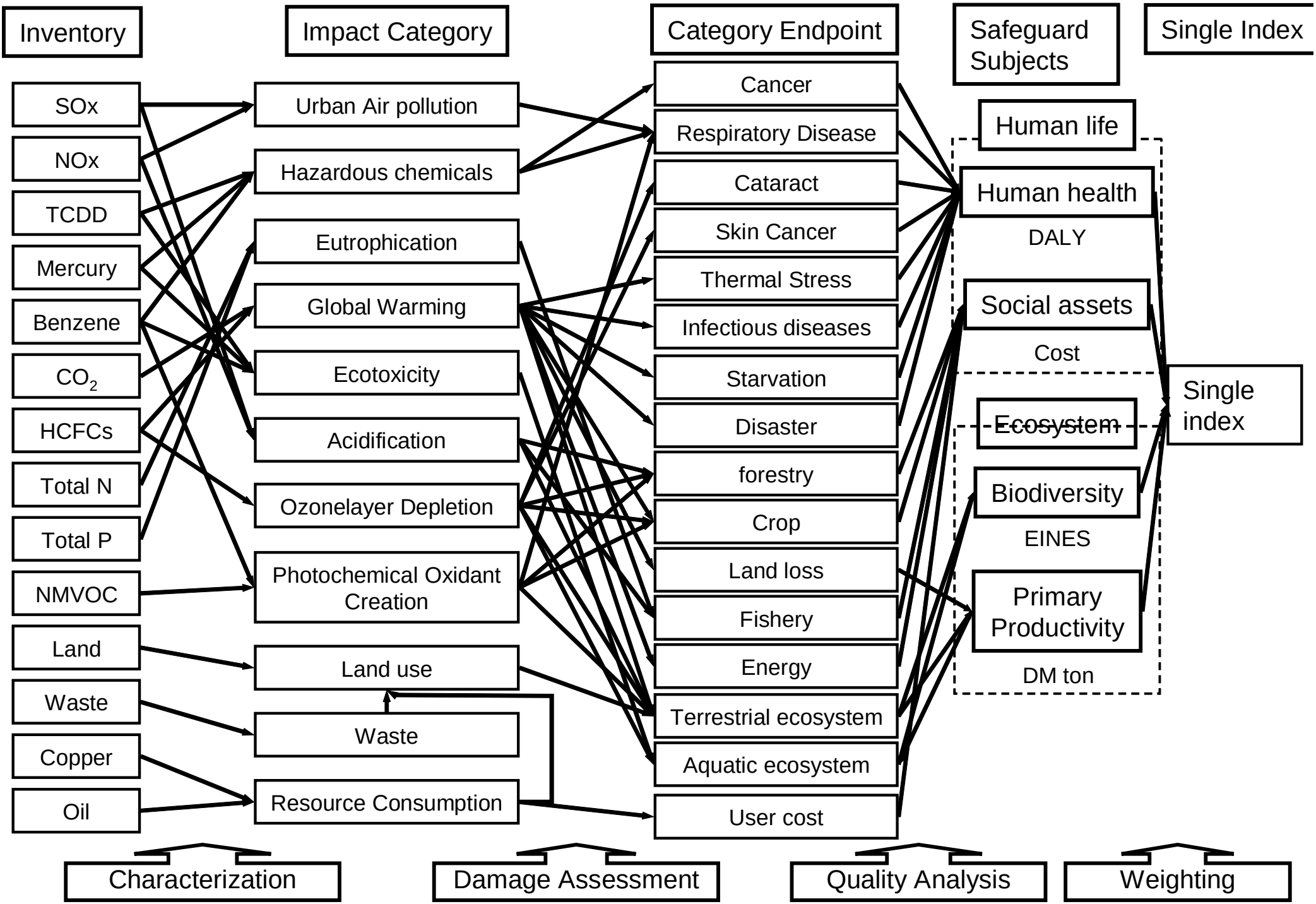


Impact assessment study committee

Development of
LCIA Method based on Endpoint Modelling
named LIME

Natural-science approach:
Inventory to damage (safe-guard subjects)
through environmental category.
Social-science approach:
Weighting safe-guard subjects

Conceptual Figure of LIME (Life-cycle Impact assessment Method based on Endpoint modeling) and the scope of this study



Three lists prepared by LIME

List for characterization Each of impact category

Greenhouse effects

CO2	CFGH_CO2
CH4 ---	CFGH_CH4

Ozonlayer depletion

CFC-11	CFOD_CFC-11
HCFC141b	CFOD_HCFC141b

Acidification

SOx ---	CFAD,x

Human Toxicity

Cd ---	CFHT,x

List for Endpoints Each of safeguard subject

Human health

CO2	DFHH_CO2
CFC-11 ---	DFHH_CFC-11

Social Welfare

Oil ---	DFSW_oil

Biodiversity

SOx ---	DFBD_SOx

Net Primary Production

NMVOC ---	DFNP_NMVOC

List for weighting Single index

Output

CO2	WFCO2
CH4	WFCH4
CFC-11	WFCFC-11

Input

Oil	WFoil
Bauxite	WFbauxite
Iron ore	WFiron ore

LCA Library or LCA database ?

(1) The system boundary of each inventory is "Gate to Gate".

(2)The database is not sufficient to be constituted systematically.

The database is called "LCA Library" as of now.

We will design the LCA Library to more systematic and inspective LCA database.

Trial to open the LCA database

1.Schedule: August 2003 to February 2004

2.Objectives:

To clarify how much LCA database was needed.

3.Target: Industries, Consumer etc.

4.Free

5.Members:

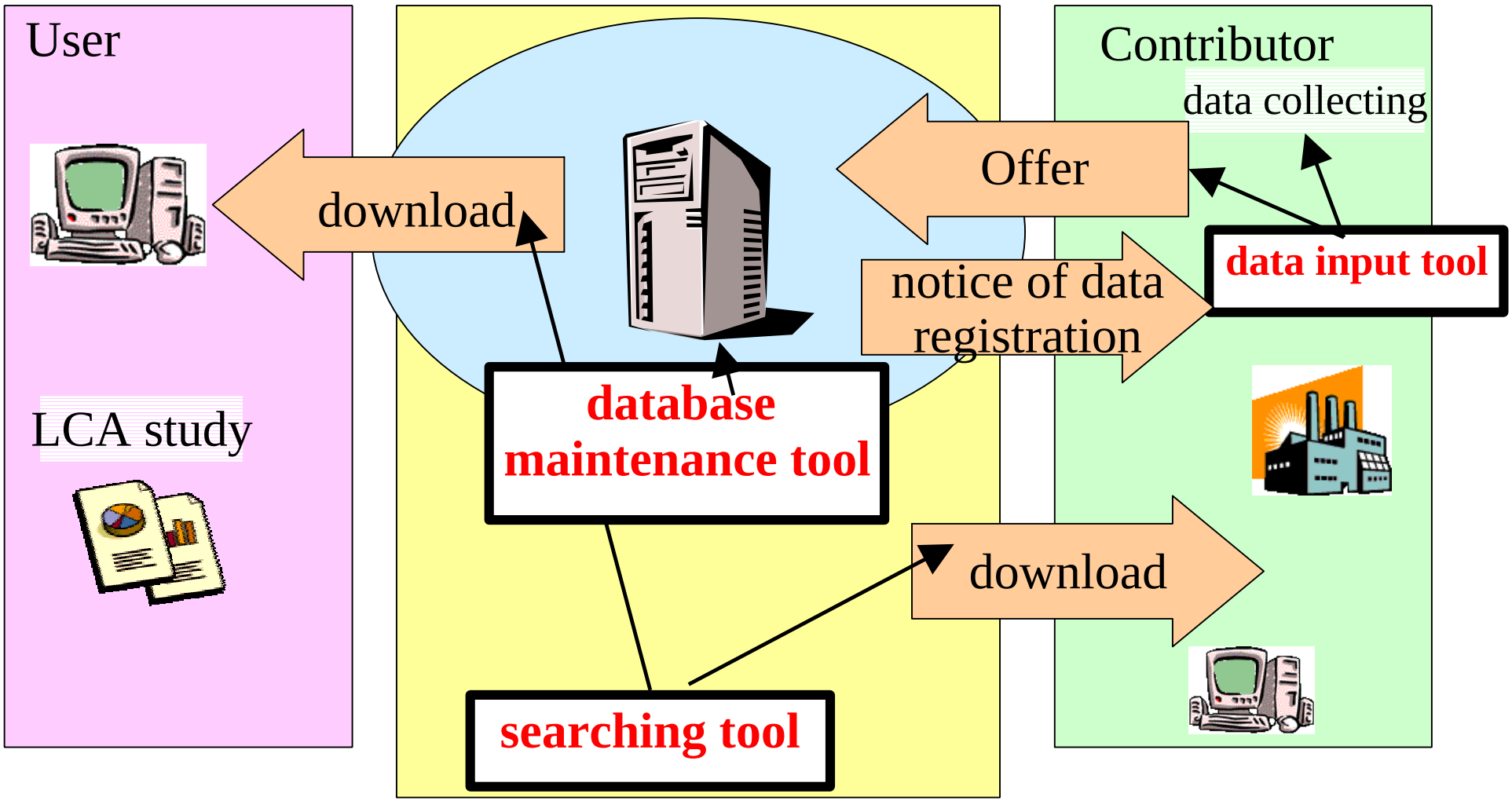
1) Corporative user (Suppliers of inventory data)

2) General user permitted by steering committee

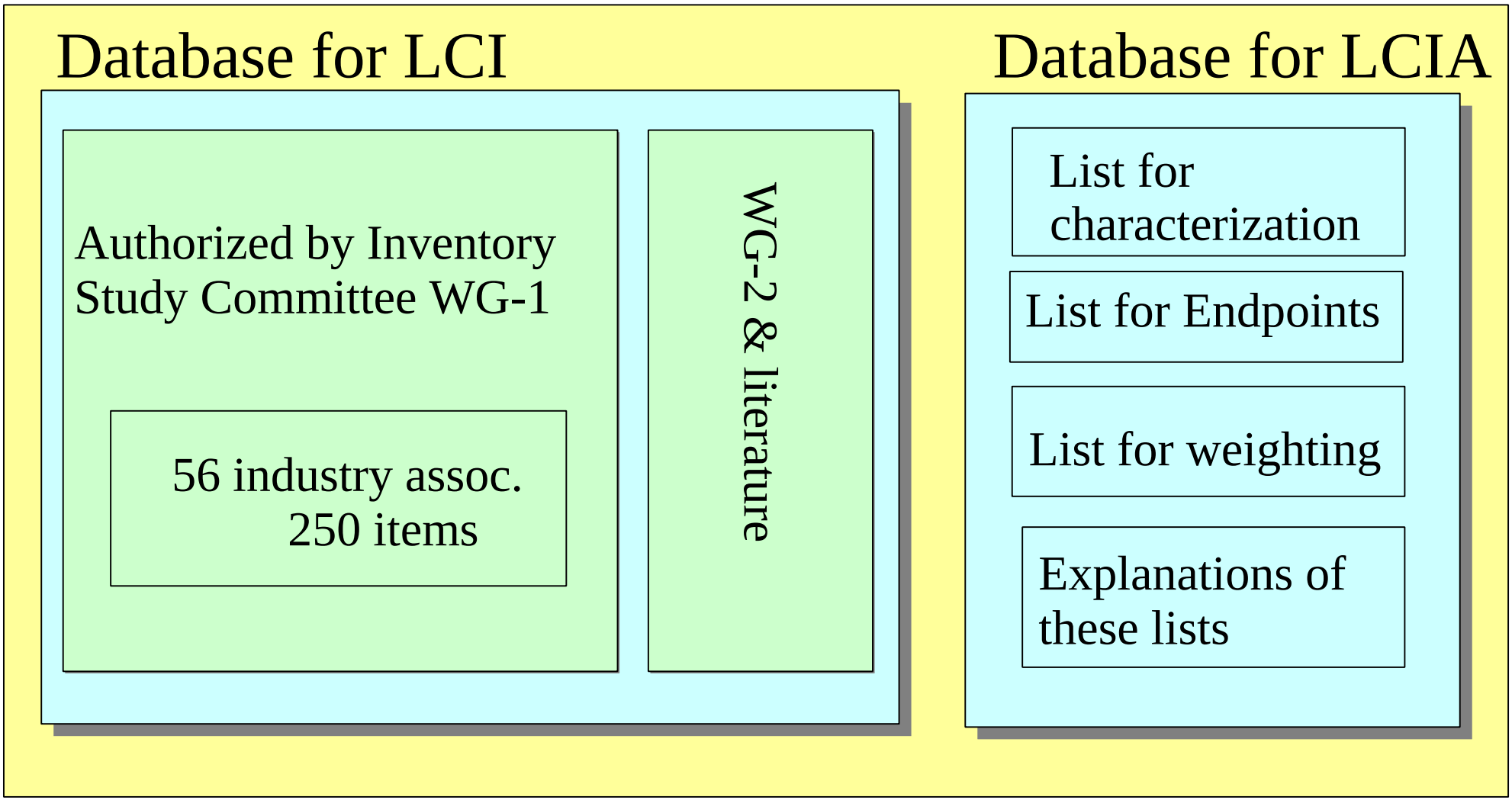
6. Language: Only Japanese

<URL: http://lcadb.jemai.or.jp>

LCA Library system



Contents of the LCA Library



Conclusions

LCA has been popular though the project.
Industries knows how to carry out LCA by the activity of industrial associations.

LCA Library for Japan

Inventory data of around 250 products,

Three types of the LCIA factor lists.