

ASEAN+ LCA Network

1. History of LCA in Japan
2. International Collaboration
3. Local to Regional
4. ASEAN+ LCA network

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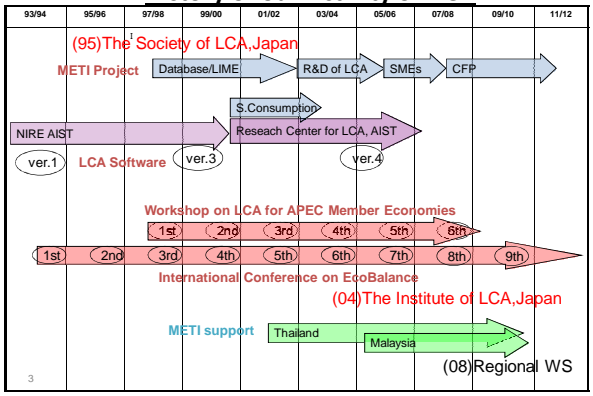
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National Science and Technology Development Agency
Ministry of Science and Technology
Thailand

History of LCA

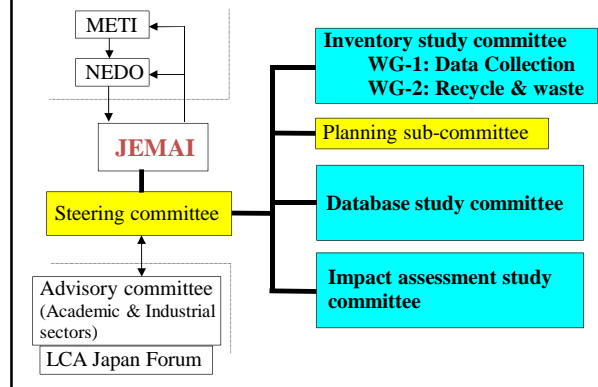
- 1969: Comparison of Returnable Bottle with PET-Bottle (Coca Cola), USA
- 1970s: US-EPA REPA: Resource & Environmental Profile Analysis
- 1979: Establishment of SETAC (Society of Environmental Toxicology & Chemistry), USA
- 1984: BUWAL, Ecobalance of Packaging Materials, Switzerland
- 1989: Establishment of SETAC-Europe
- 1990: APMA, Analysis of Packaging Materials
- 1991-2: Guideline of LCA, SETAC
- 1993: Start of ISO/TC207/SC5
- 1994: The 1st International Conference on EcoBalance, Japan
- 1995: Establishment of The Society of LCA, Japan
- 1996: International Journal of LCA
- 1997: ISO14040
- 1998: Start of LCA National Project-Japan
- 1998: 1st Workshop for APEC Member Economies
- 2001: Start of Research Center for LCA, AIST
- 2002: Establishment of UNEP/SETAC Life Cycle Initiative
- 2004: Establishment of Institute of LCA, Japan
- 2006: Revise of ISO14040-43
- 2009: Start of ISO/TC207/SC7-WG2(Carbon Footprint of Products)



History of our Activity on LCA



Organization of the LCA project



Members of inventory data collecting

Members of committee

Gas
Petroleum
Electric power
Iron and steel
Aluminum
Non-ferrous metals
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 constructor

Additional members of data collecting industry

Limestone mining
Glass fiber
Stainless steel
Batteries
Railway transport
Resinoid
Carbon black
PolyVinylChloride
Chloro-carbon
Petrochemical
Urea & ammonium
Titanium dioxide
Industrial gases
Soap and detergent
Paint
Expanded PS
Plastic Waste Management
Methanol-formaldehyde
Sulfuric acid
Finoceramics
Titanium
Electric Arc Furnace
Electric wire & cables
Chemical products
Printing ink
Acrylonitrile
Synthetic rubber
ABS resin
Emulsion
Soda
Engineering plastics
Aromatic
Urethane raw materials
Methacrylate Resin

LCA Project Phase I. (FY1998 – FY2002)

1) Development of LCI Data Base

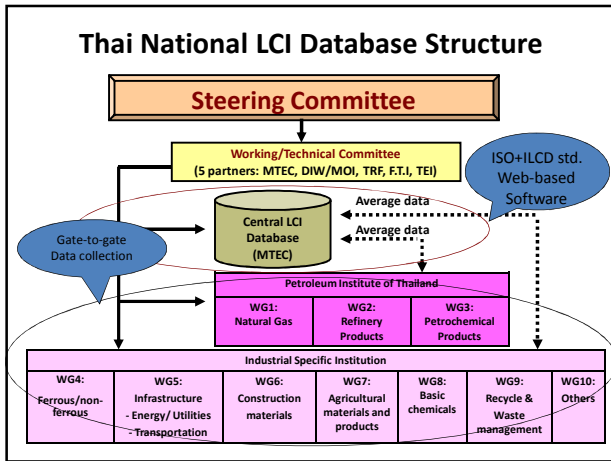
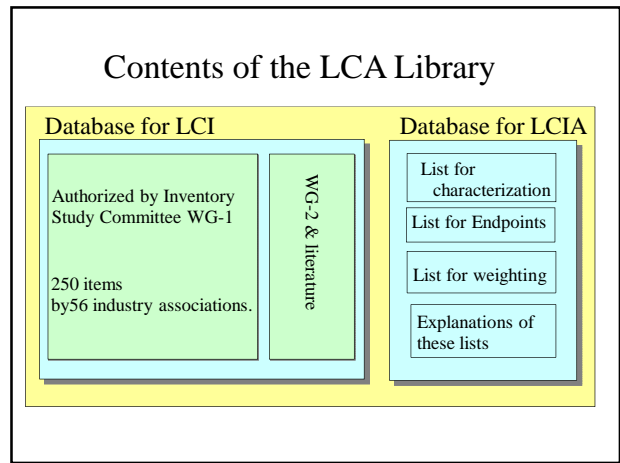
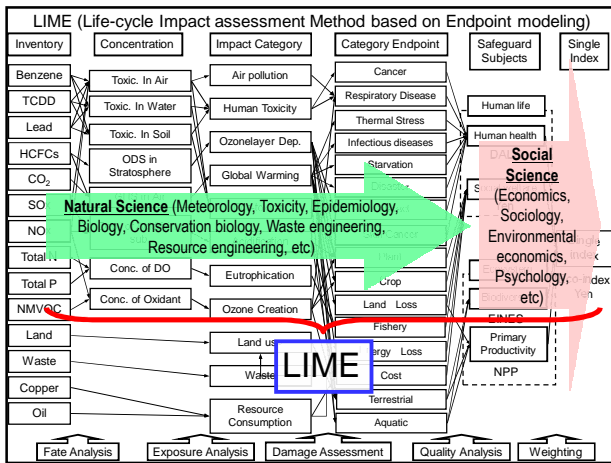
- Transparent and reliable LCI data of around 250 industrial products were collected voluntarily by 22 industrial associations of the committee and 34 industrial associations joined in the project.
- System boundary: "Gate to Gate".

- Inventory: 14 flows

(air) CO₂, CH₄, HFC, PFC, N₂O, SF₆, NO_x, SO_x, dust
(water) BOD, COD, total P, total N, SS

2) Development of LCIA Method;

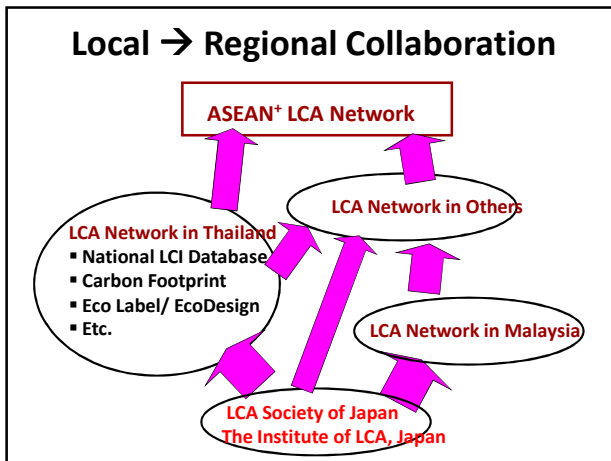
- Life Cycle Impact Assessment Method based on Endpoint (LIME).



LCI Studies for Data Collection

Sector	Projects	Sector	Projects
Database & Impact Assessment	1. Material Flow Analysis of Major Raw Materials and Resources for Malaysia 2. Survey of LCI Process Flows & Data Available in Established Foreign Databases and Literature	Chemical	10. Survey of LCI for Urea 11. LCI for Ammonia Production
Agro Industry	3. Development of LCI for the Production of Crude Palm Oil to Biofuel 4. Development of LCI for the Production of Natural Rubber Latex	Heavy Industry	12. Development of LCI for Cement Production 13. Development of LCI for Iron & Steel Production 14. Development of LCI for Primary Aluminium Production
Petroleum Petrochemical and Plastic	5. Development of LCI for Polyethylene Production 6. Development of LCI for Crude Oil & Natural Gas 7. Development of LCI for Petroleum Refinery Products	Utilities and services	15. Development of LCI for Electricity 16. Development of LCI for Water Supply 17. Development of LCI for Transport Sector
Electrical and Electronic	8. LCI Studies on Electronic Ballast 9. Establishment of LCI for an Integrated Circuit Product	General Consumer Goods	18. Development of LCI for Corrugated Packaging 19. LCI for Collection of Recycled Paper
		Waste Management	20. LCI for Municipal and Hazardous Waste Management in Malaysia

MALAYSIAN LCI DATABASE



1st Regional Workshop

Training Program on Industry and Environmental Protection for ASEAN- Life Cycle Assessment (LCA)

"Capacity Building and Regional Cooperation on eco-LCA"

Organized by: AOTS & MTEC

Date: Sept 18th – 22nd, 2008

Venue: Dusit Thani Hotel, Bangkok

Participants: 40 from 8 countries;

- > Cambodia: 1 participants
- > Indonesia: 5 participants
- > Laos: 3 participants
- > Malaysia: 6 participants
- > Myanmar: 3 participants
- > The Philippines: 4 participants
- > Thailand: 15 participants
- > Vietnam: 3 participants

Speakers: 2 Japanese, 1 Malay, 4 Thai

Site Visit: to Bitwise Factory (A/C)

Course Content: 18-22 Sep 2008

1. Lectures

1.1 Introduction and LCA Tools

- ❑ Environmental Problems/ Climate Change: Global & Regional Effects
- ❑ Environmental Management Tool: LCA Concept and Methodology

1.2 Life Cycle Impact Assessment

- ❑ Introduction and Methodology
- ❑ Weighting of Environmental Impact

1.3 LCA Applications: Eco-label/ Carbon footprint/ Eco-efficiency/ Factor X

1.4 LCI Database & Case Studies (in Thailand & Malaysia)

2. Workshop/ Exercise: LCA Software

3. Site Visit: LCA & EcoDesign at Bit Wise (Thailand) Co. Ltd.

4. Country Report & Presentation

5. Discussion: "Regional Cooperation on LCA- Establishment of LCA Network"

2nd Regional Workshop
 Training Program on Industry and Environmental Protection for ASEAN- Life Cycle Assessment (LCA)
 "Capacity Building and Regional Cooperation on eco-LCA"



Organized by: AOTS & MTEC
Date: Nov 27th – Dec 4th, 2009
Venue: Dusit, Chiang Rai, Thailand
Participants: 40 from 8 countries;

- Cambodia: 2 participants
- Indonesia: 4 participants
- Laos: 2 participants
- Malaysia: 6 participants
- Myanmar: 4 participants
- The Philippines: 4 participants
- Thailand: 17 participants
- Vietnam: 1 participants

Speakers: 3 Japanese, 1 Malay, 1 Netherlands, 7 Thai, 1 Thai/ India
Site Visit: Suwirun (Organic Tea Farm) and Doi Kham Food Products (Carbon reduction label for Dried Strawberry)

Course Content: 27 Nov-4 Dec 2008

1. Lectures

1.1 Climate Change/ GHG Reduction Policy

- ❑ Global & Regional Climate Change Status
- ❑ GHG Reduction Policy and Framework in Japan and Thailand

1.2 Applications of LCA

- ❑ Carbon Footprint Methodology and ISO + LCA/CFP Software
- ❑ Carbon Footprint Experience and Case Studies in Japan and Thailand
- ❑ LCA and Foods: Thai Experiences
- ❑ LCA of Bio-fuel: Global issues + Thai & Malaysian Experiences & Case Studies
- ❑ EcoDesign

1.3 National LCI Database & LCA Applications (in Thailand & Malaysia)

1.4 Life Cycle Impact Assessment (LCIA)

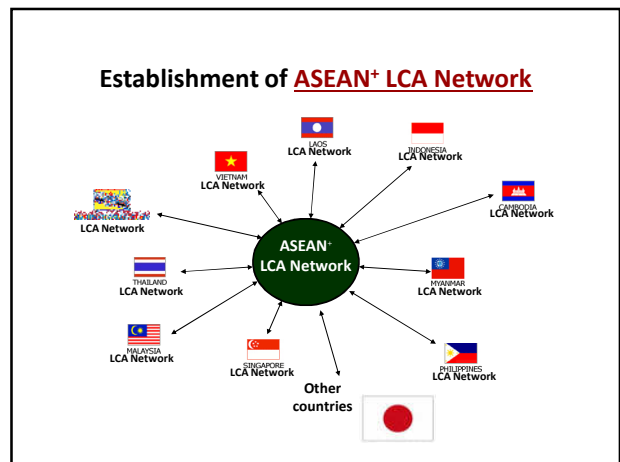
2. Workshop/ Exercises: EcoDesign

3. Site Visit: Organic Tea Farm (Suwirun) and Carbon-Reduction Label of Dehydrated Strawberry (Doi Kham Food Products Co. Ltd.)

4. Attend: International Conference on Green and Sustainable Innovation 2009

5. Country Report & Presentation

6. Discussion: "Regional Cooperation- Establishment of LCA Network & Joint Projects"



ASEAN Fact & Figure

- **10 countries** (Brunei/ Cambodia/ Indonesia/ Laos/ Malaysia/ Myanmar/ Philippines/ Singapore/ Thailand/ Vietnam)
- **Commitment:** establish an **ASEAN Community by 2015** (according to ASEAN Vision 2020)
- **Total population:** 584 million (Oct 2009)
- **International merchandise trade:** 1.71 trillion USD (Oct 2009)... mostly food, agriculture, forestry, and industrial products

 **Need to move toward**

Sustainable & Low Carbon Economy



Establishment of ASEAN+ LCA Network

- ❖ **Activities**
 - create website for communications
 - joint projects (LCI database/ LCA for specific sector: food, crops, biofuels, textile, wood furniture/ handicrafts, ...)
 - yearly meeting (report the progress)
- ❖ **Sustainability**
 - 1st 3 years
 - support networking/ joint projects/ yearly meeting by *ERIA and/or other funding agencies*
 - support admin. of local network by each country budget
 - Long term (after 3 years)
 - by "ASEAN+3" or "ERIA" or others

Draft Central Website ASEAN+ LCA Network under construction



Proposed Joint Projects for ASEAN+

SCOPE

- National LCI Database
- LCA of Food/ Agriculture
- LCA of Biomass/ Bio-fuels
- Carbon Footprint/ Water Footprint
- EcoDesign
- Etc.

Future Plan: 3rd ASEAN+ LCA workshop, 2010

toward the sustainable/ low carbon economy of ASEAN