



Green Manufacturing and Environmental Regulations of the World, and Hong Kong Industry's Response

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Electronics Industry – Worldwide Perspective

- Part of everyone's daily life
- **1 trillion** plus US\$ economy
- Annual growth rate ~ 6%
- **> 50%** production in Asia since 2005
- ~ **20%** made in China, annual growth rate **> 10%**
- ~ 50% of Guangdong's exports
- ~ 50% of HK domestic exports

Electronics Waste!

- > **20 million tons** of electronics products manufactured **per year**
- **8-months** product life cycle for consumer electronics
- Most end up as **electronics waste and toxic**
- Fairly high **Energy** consumption
- No organized **end of life** treatment before 2000!

亂棄顯示器



Source: 5 October, 2006 - Hong Kong Daily News

EU Laws & Directives

Energy-using Product (**EuP**) :

- Product design for energy optimization

Waste Electrical and Electronic Equipment (**WEEE**)

- Producer's responsibility for collection, recovery & recycling of the equipment

Restrictions of Hazardous Substances (**RoHS**):

- Limits of 6 hazardous materials (e.g. lead, mercury, cadmium, hexavalent chromium, PBB & PBDE)

I. Energy-using Product (**EuP**):

- Design considers at **each stage** of life cycle must be energy optimised:
raw materials & components, product design, manufacturing, distribution, application and end of life management
- Assessed areas: **resources consumption, emission, pollution, waste, reuse / recycling / recovery** (embracing WEEE & RoHS concepts)

II. Registration, Evaluation and Authorisation of chemicals (**REACH**):

- June 1, 2007: Enters into force
- Manufacturers or importers of chemicals to register and provide health & safety data
- Existing ~30,000 substances have to be registered
- Chemicals of very high concern may be phased out
- Impact on plastics used in **computers, mobile phones, toys, furniture, textile...**

III. End-of-Life Vehicles (ELV):

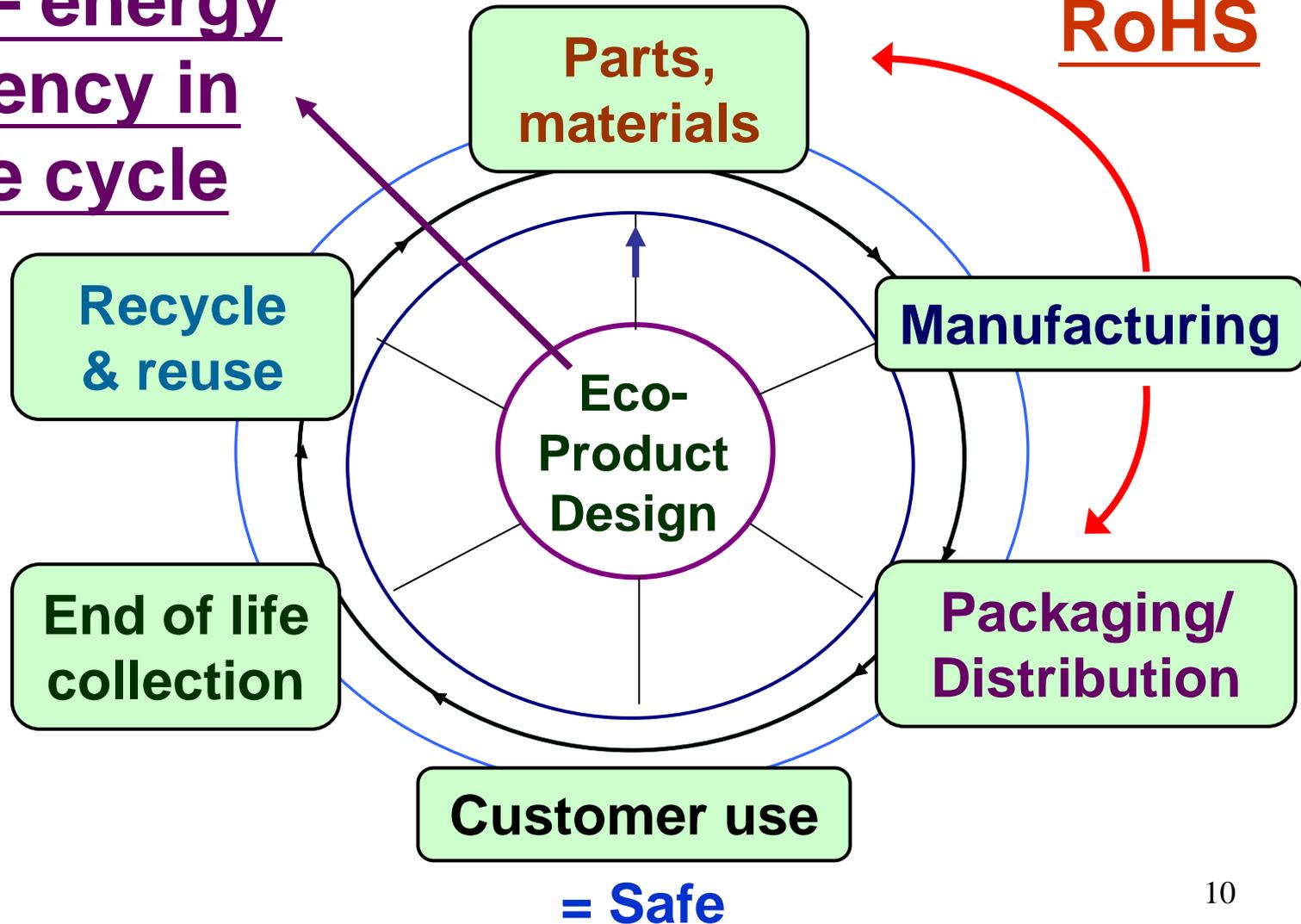
- Limits the use of hazardous substances in auto parts/components
- ELVs and waste parts are to be collected and treated
- Producers must meet all / significant part of the the 'take-back' cost for **ALL** vehicles from **January 1, 2007**

Product Life-Cycle is now...

“Cradle to Cradle”

EuP – energy efficiency in whole cycle

WEEE



EU: WEEE & RoHS (2005 & 2006)

EU: EuP (2007)

EU: REACH (2007)

China:

- RoHS (2007)
- WEEE (under preparation)

Korea: RoHS/WEEE (Jan 1, 08)

California: Recycling (2005) with RoHS (2007)

RoHS (Pending)
Australia, Taiwan, Argentina, Brazil...

Japan:

- Recycling Law (2001)
- RoHS labeling (2006)

“Administration on the Control of Pollution Caused by Electronic Information Products”

《電子信息產品污染控制管理辦法》：

- Effective **March 1, 2007**
- Apply to products **manufactured in, sold in or imported into** China (export products not applied)
- More requirements than EU RoHS (e.g. labelling, Compulsory pre-market certification)

Challenges to Industry

- Cultural change
- Higher costs - investment, operations, materials
- Technical issue - lead free soldering
- Quality & reliability - not fully established
- Management practice
- **Legal liability** - penalty for non-compliance
- **Financial liability** - product recall

Position of Hong Kong Industry

- Southern China - hub for electrical & electronic manufacturing: > 40% of total industrial output
- Hong Kong companies operate 80,000 factories in Southern China (> 10 million workers)
- > 40% of HK manufacturing companies are related to:
 - electronics, electrical appliance, watch, toy
- HK's electronics products:
 - 50% of HK's exports (2006)
 - Major markets: China 56%, EU 11%, US 10%

→ Huge impact from the environmental laws

“Green Manufacturing” Practice:

- Considerations for the environmental impacts at all stages of the product lifecycle embracing **energy efficiency**
- Will not introduce nor use any materials harmful to the ecosystem at the **design, components, production, packaging, field application & end of life management** stages

The True Meanings:

- Principle
 - fundamental
- Culture
 - for the whole corporation, community
- Commitment
 - every employee
- Duty
 - to society (CSR)
- Long term
 - and evolving

HK Industry's Response: Hong Kong Green Manufacturing Alliance (HKGMA)



- A non profit making organization supported by manufacturing and trade associations
- Alliance formed Dec 2004
- Founding Honourary Chairman: Prof. KB Chan
- Secretariat: Federation of Hong Kong Industries
- Steering committee – holds regular meeting
- Government support

Mission

- To facilitate the transformation of HK manufacturing industry into “Green”

Activities (2005 - Dec 2007) – on RoHs WEEE

- Raise **awareness**: seminars, promotions
 - Provide **guidelines** for compliance: workshops
 - **Technology advancement**: R&D, database
 - **Industry representation**: liaise with government
 - Platform for **networking**: domestic and international
- Organized > 40 events - 5,000 participants

Month	Major Events in 2006 & 2007	Venue	Attendance
Feb 06	Seminar on Restricted Substances Directive in China	China	700
Mar 06	Meeting with European Parliament and European Commission	Belgium	> 50
Aug 06	Workshop: Managing RoHS and WEEE Compliance through Green Manufacturing	HK	200
Jan 07	Seminar on International Environmental Legislations and EcoDesign on RoHS, WEEE, EuP & REACH	HK	200
Mar 07	RoHS Seminar in Tokyo	Japan	100
Mar 07	Updates on China's RoHS Development and Compliance	China	800
Oct 07	Seminar: Recent Developments in Product Safety Legislation and Enforcement (REACH & RoHS)	HK	200

Results



- Industry's awareness & attitude dramatically changed
- Local force: compliance actions and co-operations among companies, trade associations, educational institutions and testing labs
- Networks: foreign gov'ts and regulatory bodies (EU Parliament, China's Ministry of Information Industry)
- So far, **No** HK companies were found to violate the EU laws and penalized

Summary



- Worldwide trend: more laws are coming, more restrictions, wider scope
- Huge impact on HK industry and other countries'
- HKGMA will continue to actively provide assistance to local enterprises.
- To promote EUP & REACH awareness
- Also trying to set up networks with governmental organizations from different countries (including **US, Asian countries**)

**Let's Join Us in Promoting
Green Manufacturing!**

Thank You!