

Regional Dialogue Driving Mechanisms for Eco-Design in Asia

9th December 2020

UNEP/Thailand Institute of Environment

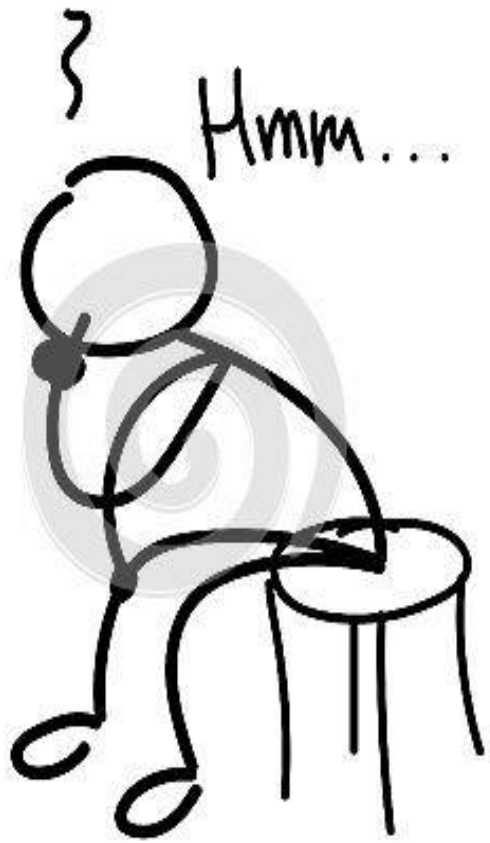
Webinar

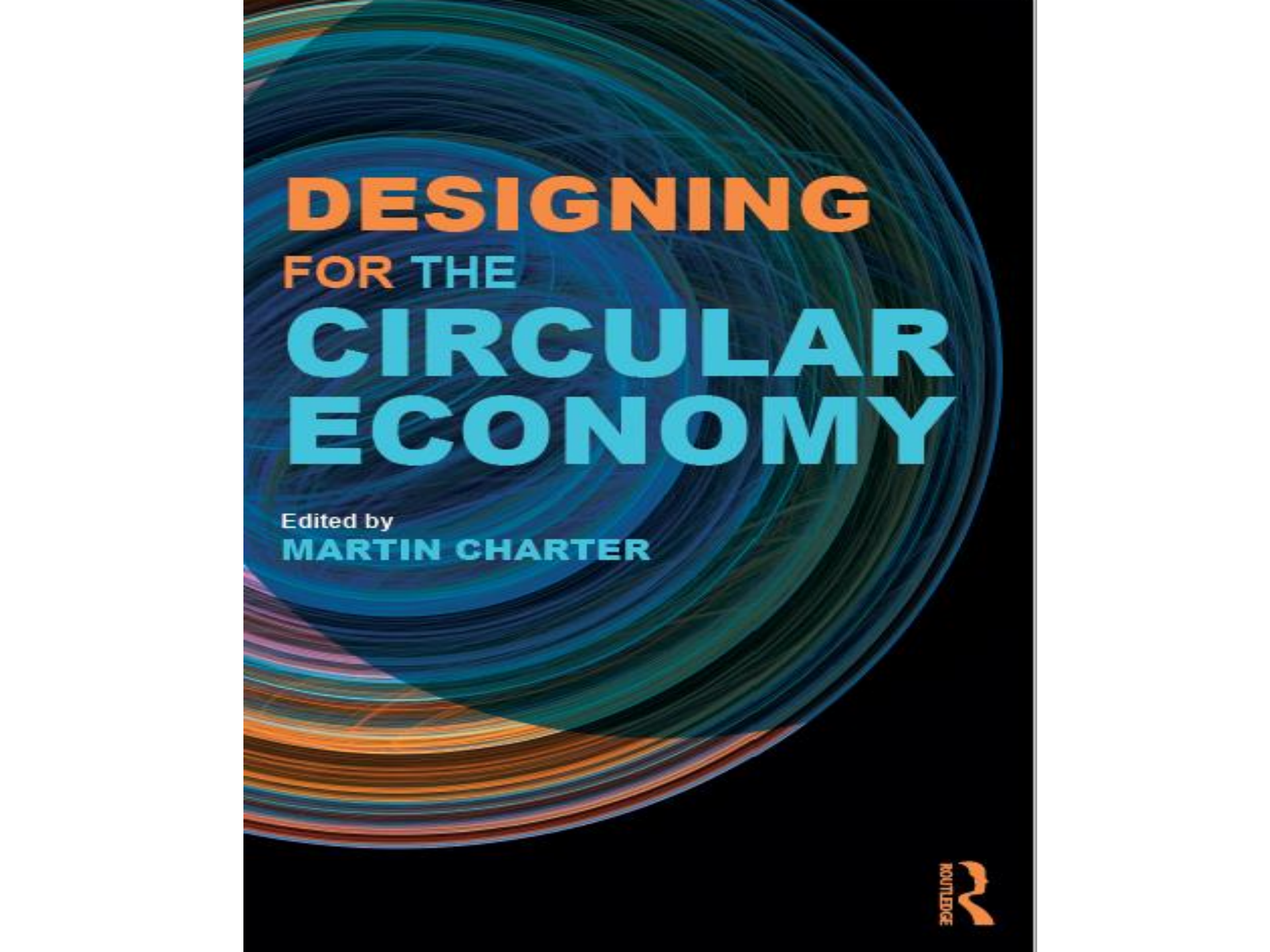
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DESIGNING
FOR THE
CIRCULAR
ECONOMY

Edited by
MARTIN CHARTER

Ecodesign in industry & Circular Economy

- Industry has been applying ecodesign tools and approaches for over 20 years
- The principles being applied in industry and standards include aspects closely linked to CE e.g. design for repairability, etc
- The emergence of the CE policy in Europe and subsequent materials efficiency standards are steps towards increasing the scope of ecodesign policy from an energy focus to include resource efficiency
- Circular design is a sub-set of ecodesign

Why ecodesign?

80%

80% of environmental impacts are determined at the design stage

5%

Design only constitutes 5% of the total cost of a product

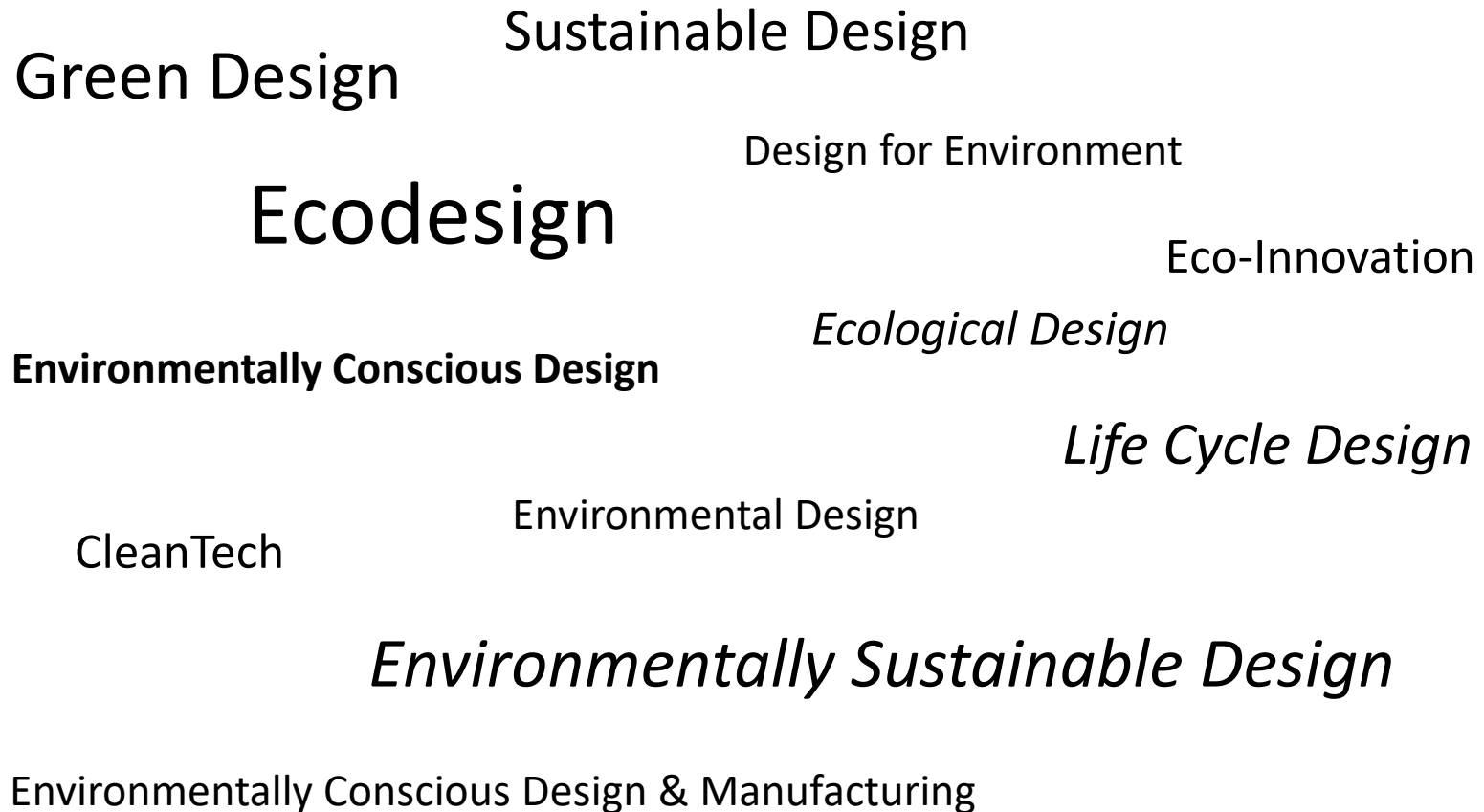
90%

90% of manufacturing costs are the result of decisions taken at the product design stage

What is ecodesign?

- The systematic identification and consideration of environmental aspects within product design and development in order to reduce adverse environmental impacts and improve environmental performance of the product throughout its whole life cycle
- An environmental aspect of a product is any element attribute or function that can interact with the environment
- An environmental impact means any adverse change to the environment, wholly or partially resulting from the product environmental aspect

Terminology



Traditional Linear 'Cradle to Grave' Product Life Cycle Thinking



Extraction of raw
materials



Manufacturing



Packaging
and
distribution

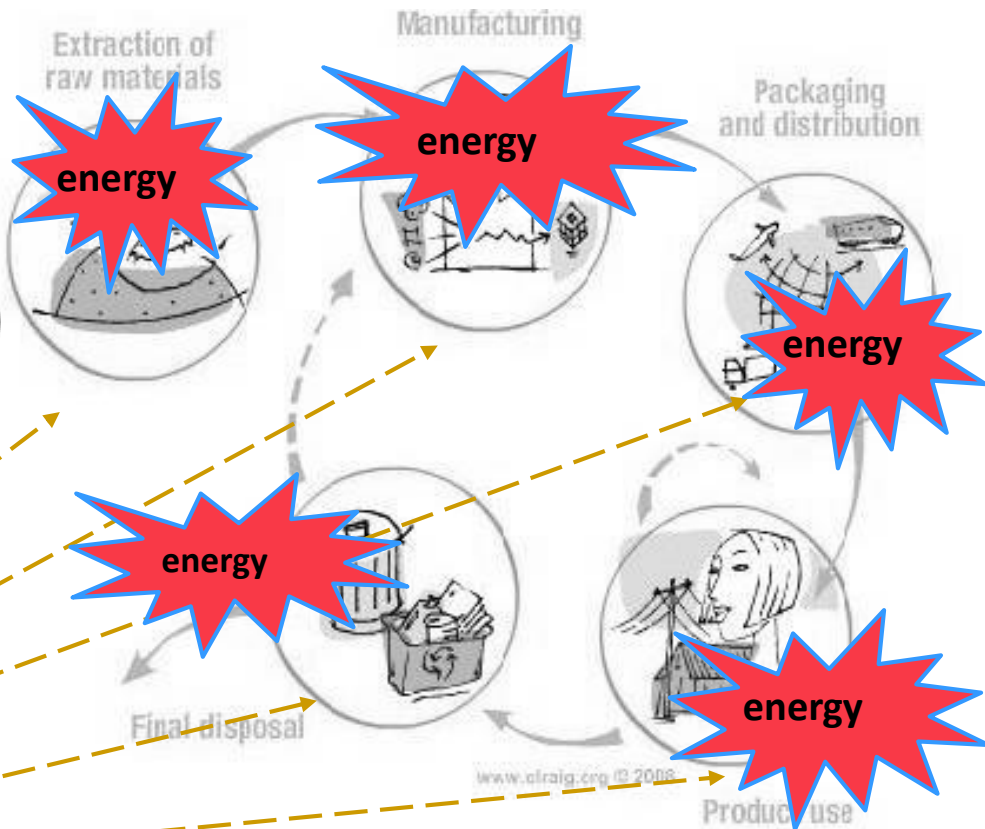


Use
and maintenance



Incineration and
disposal

Consumption of resources?
Anticipated emissions?
Anticipated pollution?
Expected generation of
waste material?
Possibilities for reuse &
recycling?



Impacts, Aspects and Design Parameters

Environmental Impact

- Climate change
- Ozone layer depletion
- Air pollution
- Loss of habitat and biodiversity
- Resource depletion

Environmental Product Aspect

- Energy consumption
- Water consumption
- Emissions to air, water and soil
- Generation of waste
- Ease of reuse and recycling
- Material content and amount

Product Design Improvement

- Weight and volume
- Shape
- Number of parts
- Platings
- Fixings
- Choice of materials
- Mix of materials
- Fabrication techniques
- Assembly techniques
- Power supply consumption and efficiency
- Fuel consumption
- Use of consumables



European Commission Ecodesign Directive The Legal Framework



What is ecodesign?

- ‘the integration of environmental aspects into product design with the aim of improving the environmental performance of the product throughout its whole life cycle’
 - Article 2.23 of Directive 2009/125/EC



Product-Specific Regulations

- Ecodesign Directive
 - Directive 2009/125/EC - establishing a framework for the setting of ecodesign requirements for Energy-related Products (ErP)
 - See: Official Journal of the European Union Legislation (OJ L) 285, 31 October 2009
- This "framework" defines the "rules" for setting product-specific requirements/legislation on energy efficiency and further parameters
- Compliant products receive the "CE Mark"





EU Ecodesign Regulations - Part 1 of 3

- Air conditioners and comfort fans (2012)
- Air heating and cooling products (2016)
- Circulators (2012)
- Computers (2013)
- Domestic cooking appliances (2014)
- Electric motors (2014)
- External power supplies (2009)
- Household dishwashers (2010)
- Household tumble driers (2012)
- Household washing machines (2010)



EU Ecodesign Regulations - Part 2 of 3

- Industrial fans (2011)
- Lighting products in the domestic and tertiary sectors (2015)
- Local space heaters (2015)
- Heaters and water heaters (2013)
- Power transformers (2014)
- Professional refrigerated storage cabinets (2015)
- Refrigerators and freezers (2009)
- Simple set-top boxes (2009)
- Solid fuel boilers (2015)



EU Ecodesign Regulations - Part 3 of 3

- Solid fuel boilers (2015)
- Standby and off mode electric power consumption of household and office equipment and network standby (2008)
- Televisions (2009)
- Vacuum cleaners (2013)
- Ventilation units (2014)
- Water pumps (2012)



EU Ecodesign: Evolution from Past to Present

- Past (related to energy-related products (ErPs))
 - Energy consumption (in the *use* phase)
 - Emissions (e.g. NOx)
 - Resource use (e.g. water conservation)
- Now (related to ErPs) [M/543]
 - As above – PLUS
 - Facilitating repairability, spare parts, manuals
 - Combatting product premature obsolescence
 - Combatting “Dieselgate” test detection software
 - Product circularity [additional emphasis on Resource Efficiency - *end of 1st life/ facilitating 2nd life*]



CEN-CENELEC JTC10: Published Resource Efficiency (Circular Economy) Standards

TR 45550 - Definitions related to material efficiency

Preliminary Version Available

TR 45551 - Guide on how to use generic material efficiency standards when writing energy related product specific standardization deliverables

CANCELLED

EN 45553 - General method for the assessment of the ability to re-manufacture energy related products

Published

EN 45555 - General methods for assessing the recyclability and recoverability of energy related product

Published

EN 45556 - General method for assessing the proportion of re-used components in energy related product:

Published



CEN-CENELEC JTC10: Published Resource Efficiency (Circular Economy) Standards

EN 45552 - General method for the assessment of the durability of energy related products

Published

EN 45554 - General methods for the assessment of the ability to repair, reuse and upgrade energy related products

Published

EN 45557 - General method for assessing the proportion of recycled material content in energy related products

Published

EN 45558 - General method to declare the use of critical raw materials in energy related products

Published

EN 45559 - Methods for providing information relating to material efficiency aspects of energy related products aspects

Published

**Ecodesign in industry means
much more than the Ecodesign
Directive!**

The European Green Deal

von der Leyen Commission

#EUGreenDeal



The European Green Deal





Circular Economy Action Plan

The European
Green Deal

2. A SUSTAINABLE PRODUCT POLICY FRAMEWORK

2.1. Designing sustainable products

While up to 80% of products' environmental impacts are determined at the design phase⁸, **the linear pattern of “take-make-use-dispose” does not provide producers with sufficient incentives to make their products more circular.** Many products break down too quickly, cannot be easily reused, repaired or recycled, and many are made for single use only. At the same time, the single market provides a critical mass enabling the EU to set global standards in product sustainability and to influence product design and value chain management worldwide.





Circular Economy Action Plan 2.0

Value Chains Approach

- Electronics and ICT
- Batteries and vehicles
- Packaging
- Plastics
- Textiles
- Construction and buildings
- Food, water and nutrients



International Standards on Ecodesign

ISO Ecodesign Standards Overview

- In general use continuous improvement cycle of identify, plan, execute and review
 - *ISO/TR 14062: 2002 - environmental management - Integrating environmental aspects into product design and development (withdrawn)*
 - *ISO 14006 : 2019 - environmental management systems - Guidelines for incorporating ecodesign (published)*
 - *ISO 14006: 2020 - environmental management systems - Guidelines for incorporating ecodesign (published)*

ISO 14006: 2020

Title: Environmental Management Systems – Guidelines for incorporating Ecodesign

Owners: ISO TC 207/SC1

Background: Revision of ISO 14006: 2011

Convenor: UK

Scope: All products/all sectors

Focus: Management of Ecodesign

Audience: Environmental managers

Publication: February 2020

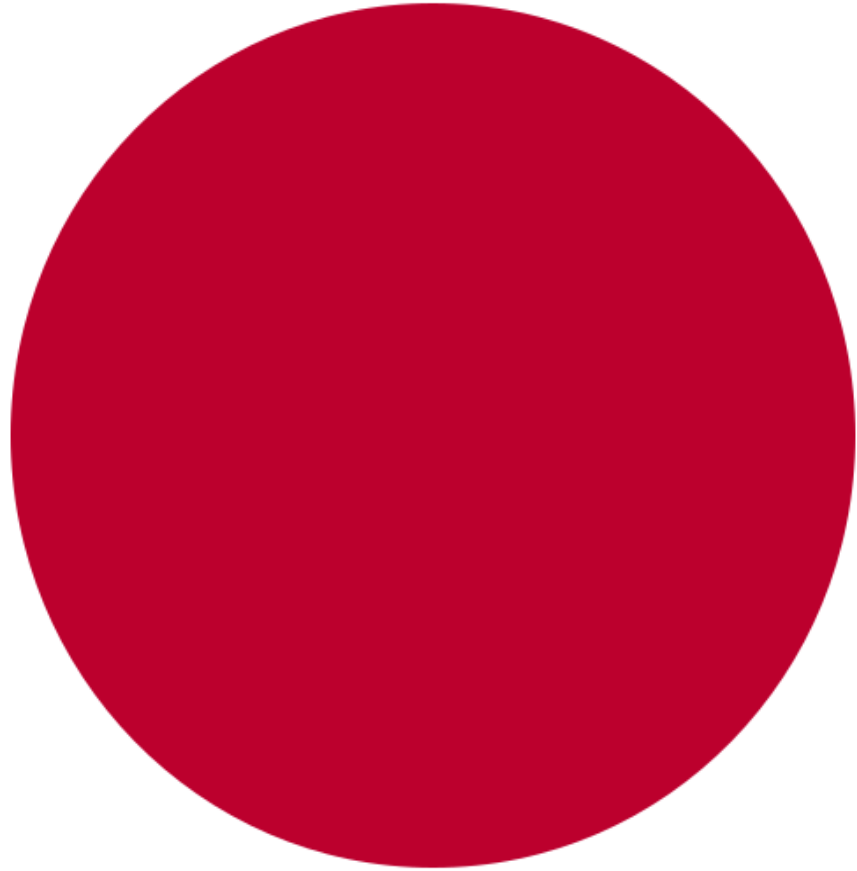
Notes: Aligned to changes to ISO 14001:2015 & ISO 9001: 2015, avoids duplication IEC 62430: 2019

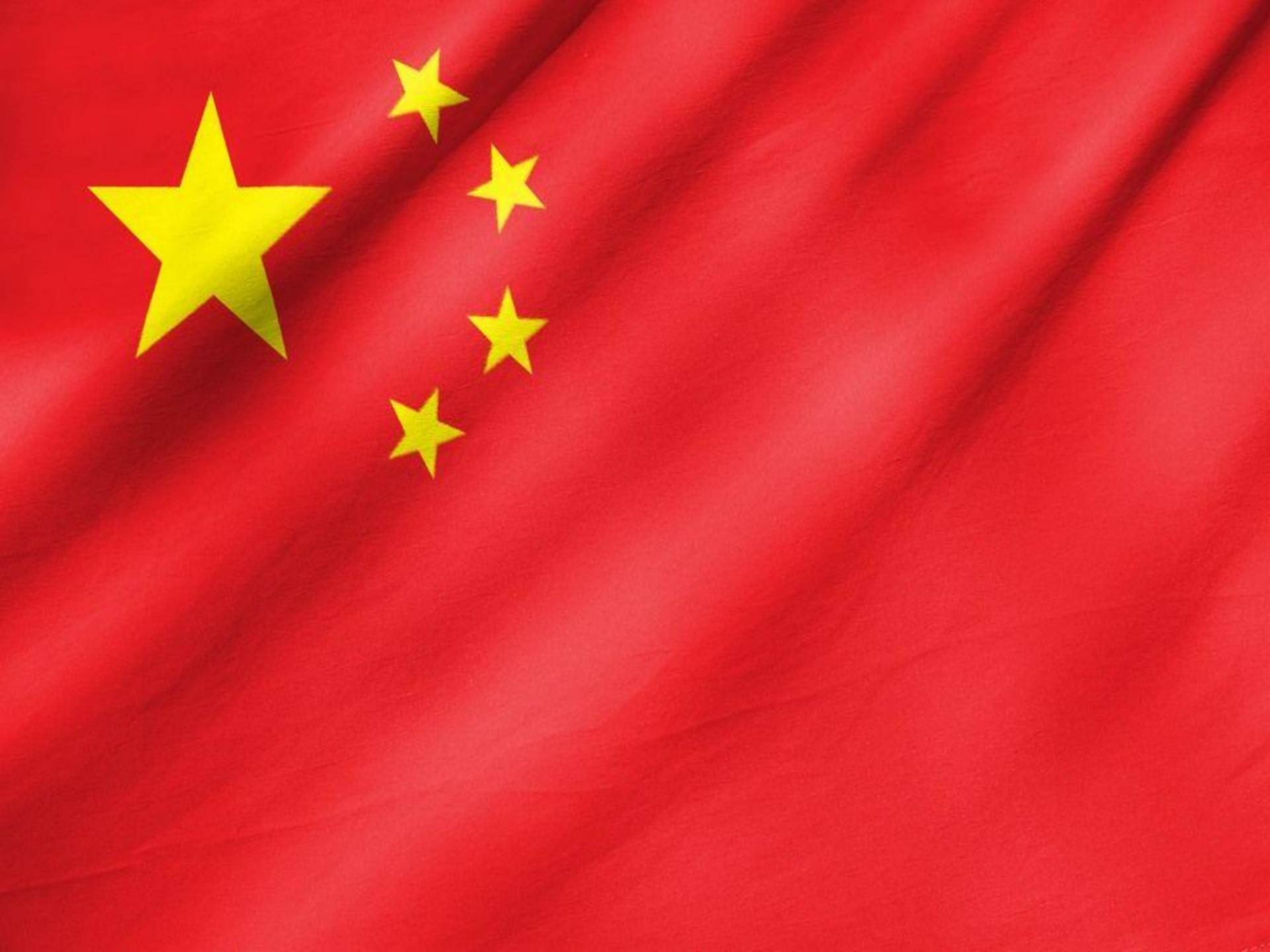
IEC 62430: 2019

Title:	Environmentally Conscious Design (ECD) – Principles, requirements and guidance
Owners:	IEC TC 111 (IEC/ISO/JWG (Double logo))
Background:	Base was IEC 62430: 2009 (EEE)
Convenor:	Japan
Scope:	All products/all sectors
Focus:	Ecodesign at operational design level
Audience:	Designers
Publication:	December 2019
Notes:	Avoids duplication with ISO 14006: 2020

ISO TC 323: Circular Economy

- Structure:
- WG1: 1st standard – Concept, terms & definitions
 - WG2: 1st standard – New business model & value chains
 - WG3: 1st standard – Metrics & measurement
 - WG4: 1st standard – Case study
- Convenor: France
- Scope: All products/all sectors
- Focus: Organisational aspects?
- Audience: Environmental managers – TBC
- Notes:
- Online kick-off meeting – June 2020 (220+ delegates)
 - 2nd meeting – Online or Japan – Jan 2021





The logo for aeede, featuring the lowercase letters 'aeede' in a green, sans-serif font. A faint, light green map of Asia is visible in the background behind the text.

aeede

asia eco - design electronics

Country Reports of China on the Electronics Sector

Asia Eco-Design Electronics

10th April 2006

Emerald Hotel

Bangkok, Thailand

CAPACITY BUILDING



TRAINING



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KNOWLEDGE



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COACHING



SUPPORT



DEVELOPMENT



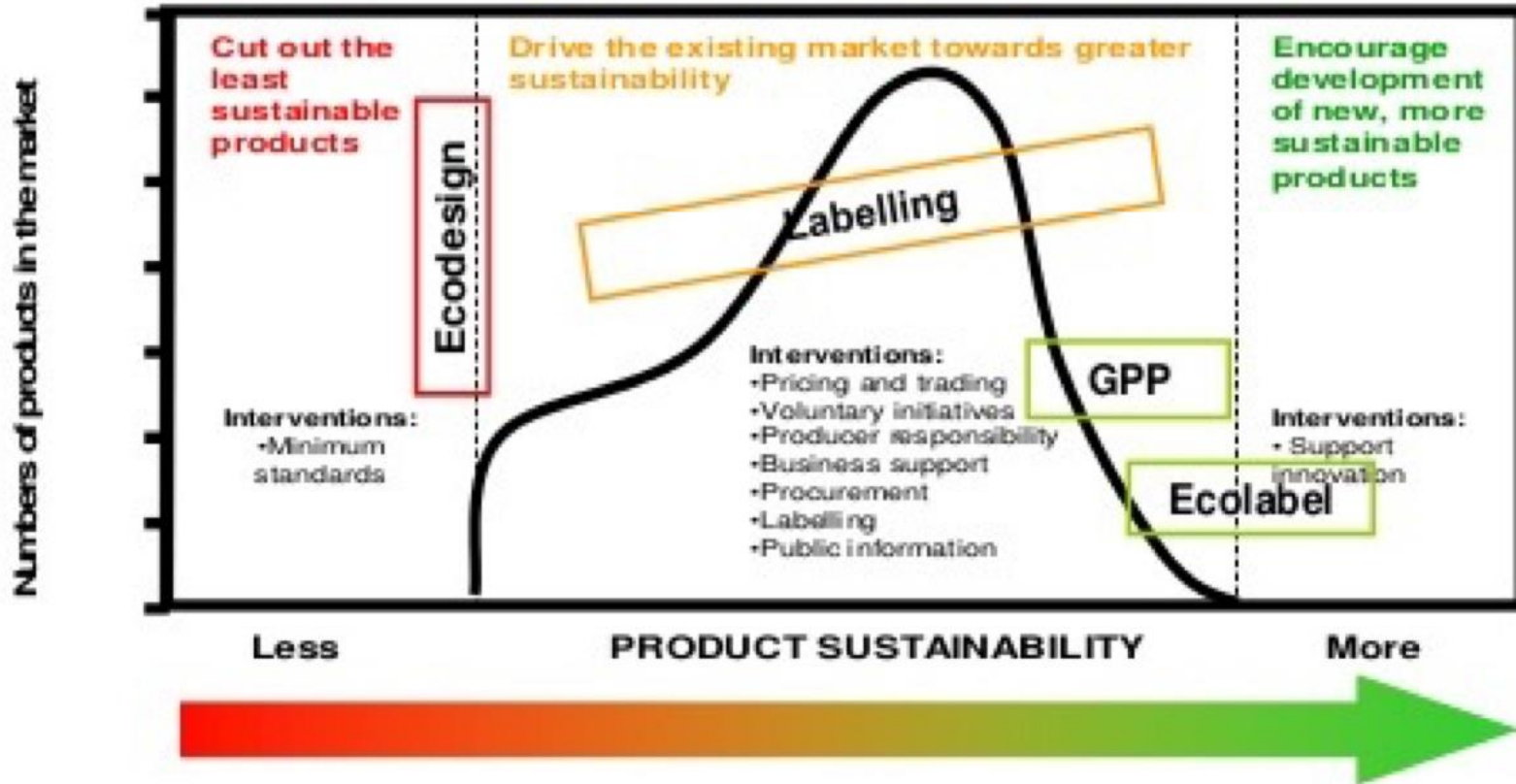
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EU Environmental Product Policy – State of Play (2020)



GPP = Green Public Procurement

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