Center of Excellence on Green Productivity
Asian Productivity Organization
亞洲生產力組織　綠色卓越中心

Subject: Promoting Sustainable Consumption and Production, the Eco-competitiveness of Industries and Green Factories

Sustainable Consumption and Production (SCP)

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APO 3rd World Conference on Green Productivity
APO Center of Excellence on Green Productivity: Milestone of APO movement
November 4-6, 2014, Taipei ,Taiwan

Outline

- Unsustainable World
- Sustainable Consumption and Production (SCP)
- Green Productivity (GP)
- Environmental Labels (EL)
- Sustainable Public Procurement (SPP) / Green Public Procurement (GPP)
- Global Trend of Green Market

Outline

- **Unsustainable World**
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Stockholm, 1972

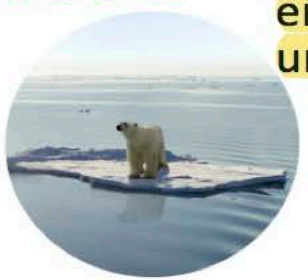
Declaration, POA, 28 Principles


Rio de Janeiro, 1992
SCP in the Rio Declaration
Conventions, Agenda 21, FP


Johannesburg, 2002
Plan of Implementation, MDGs

3°C or more

rise in temperature by the end of the century, due to doubling of GHG emissions by 2050 , under BAU.



60% of ecosystems damaged or being used unsustainably

2 to 3 billion

additional **middle class consumers** by 2030

140 billion tonnes of global extraction of natural resources **per year by 2050,** if consumption stays at **current developed country rates.**

Source: Henry Bastaman, Deputy Minister MOE Indonesia, Regional Workshop on Sustainable Public Procurement and Ecolabel, Beijing, 24 September 2014.

ECOLOGICAL FOOTPRINT

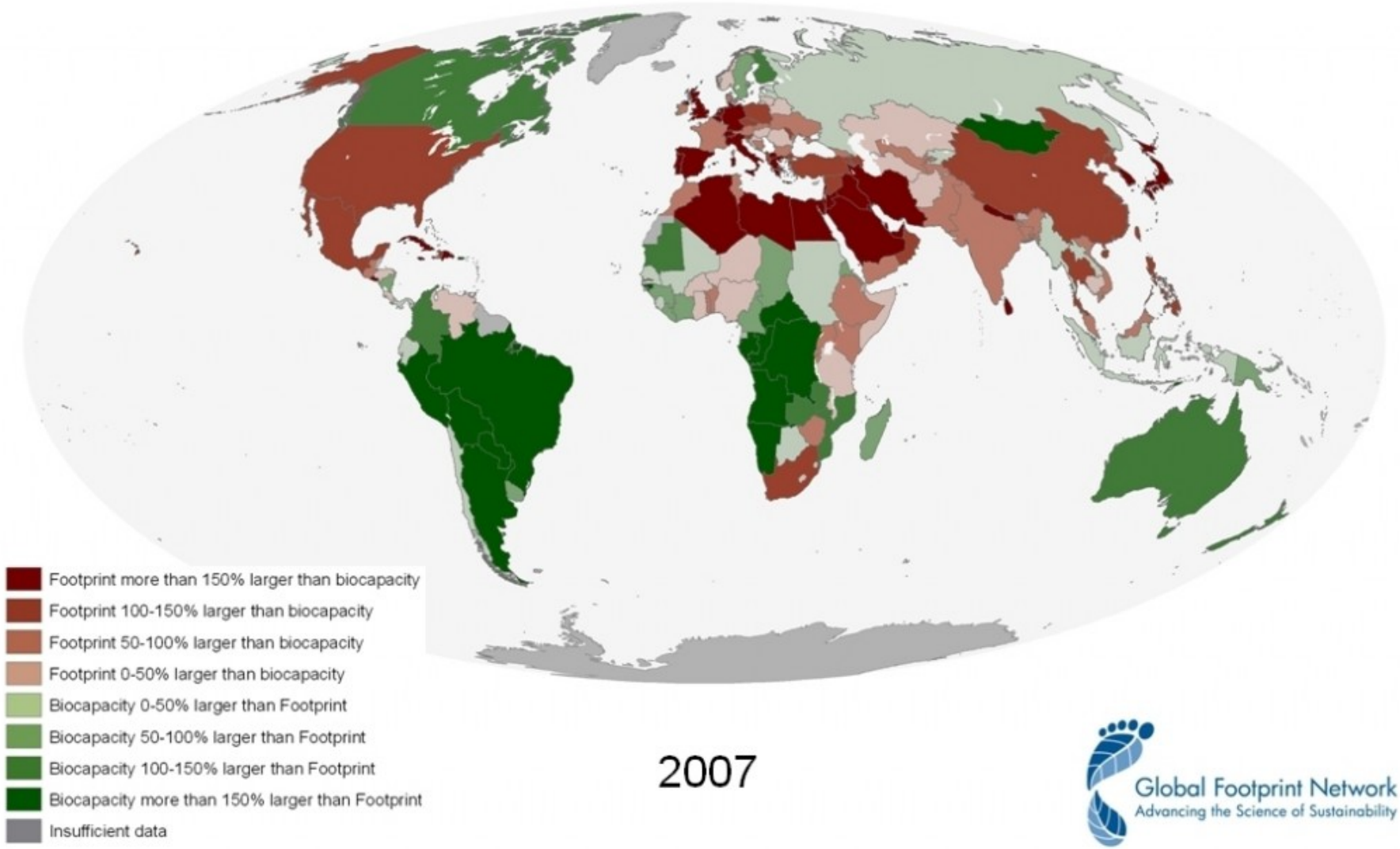
A measure of how much biologically productive land and sea area an individual, population or activity requires to produce all the resources it consumes and to absorb its waste.

BIOCAPACITY

Biological capacity, the ability of an ecosystem to regenerate useful biological resources and absorb wastes generated by humans such as carbon dioxide emissions from fossil fuel.

Source: http://www.footprintnetwork.org/en/index.php/GFN/page/earth_overshoot_day/

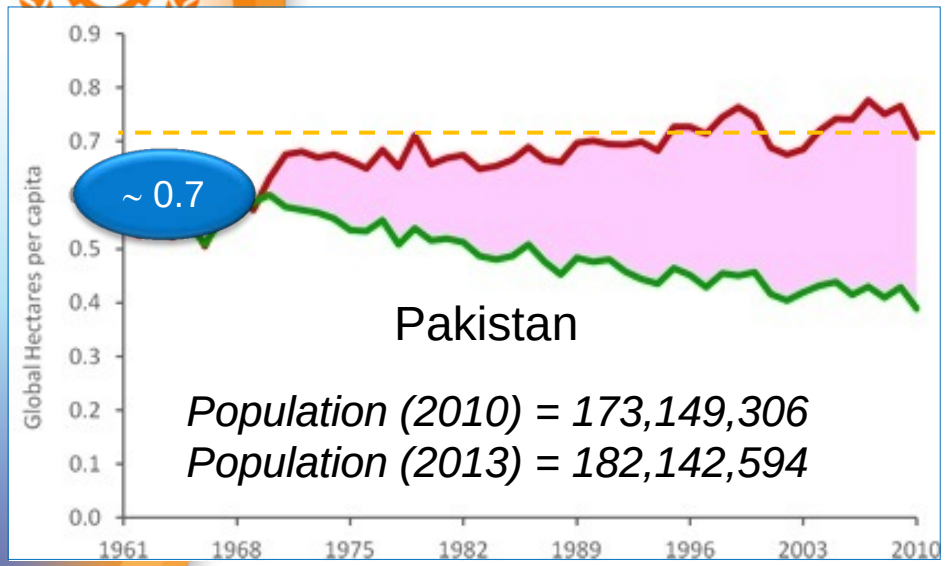
Percent of Earth's Biocapacity Used: 151%

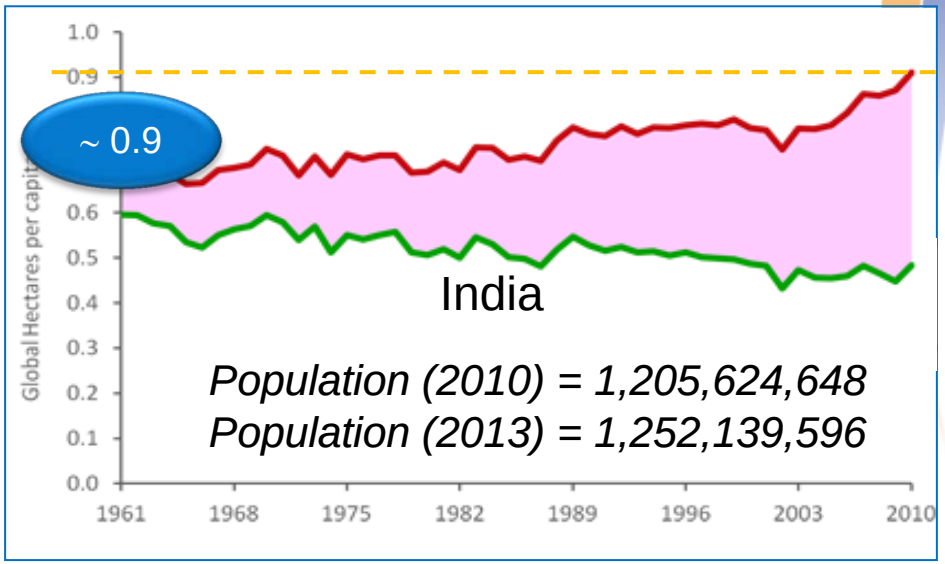


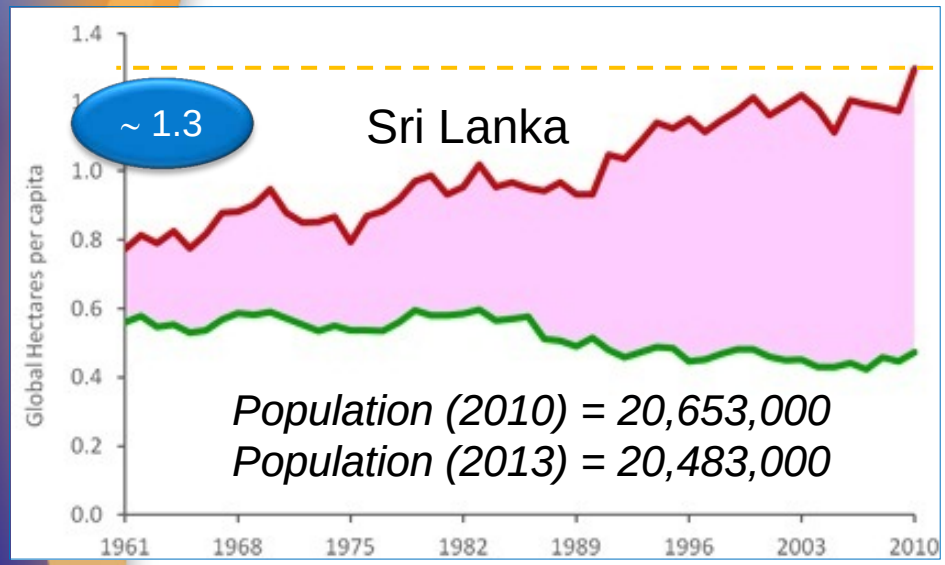
Ecological Creditor/Debtor Countries

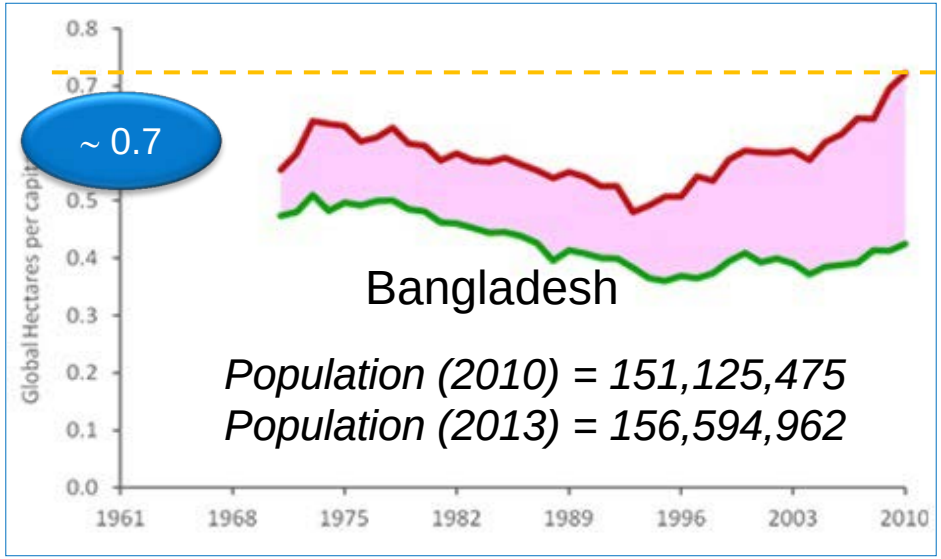
Source: http://isnblog.ethz.ch/environment/development-on-its-head-the-world-global-footprint

Ecological Footprint vs Biocapacity



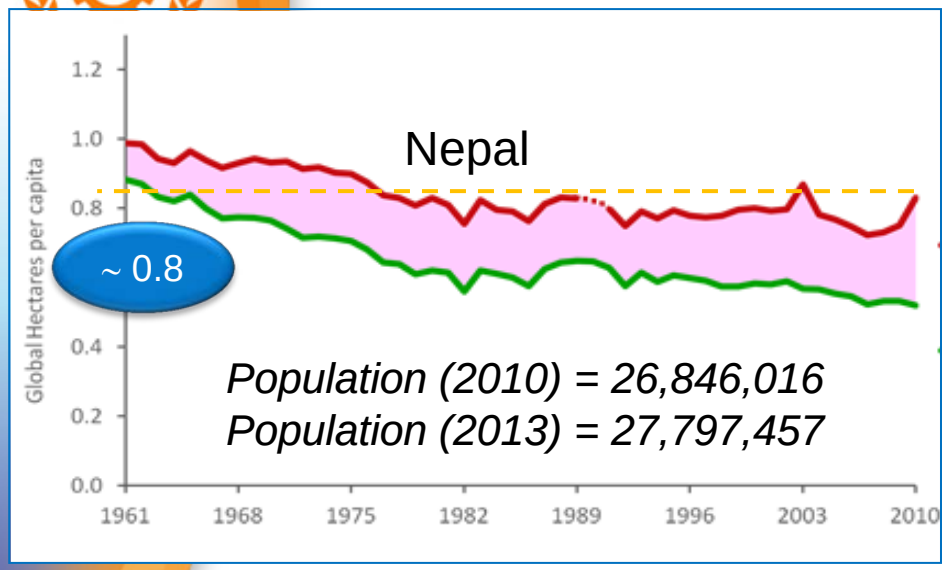


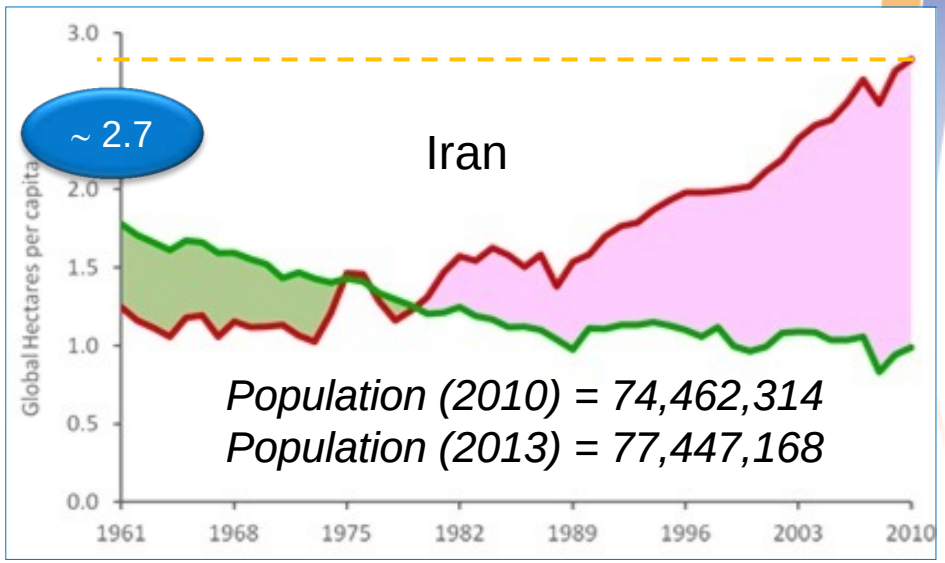


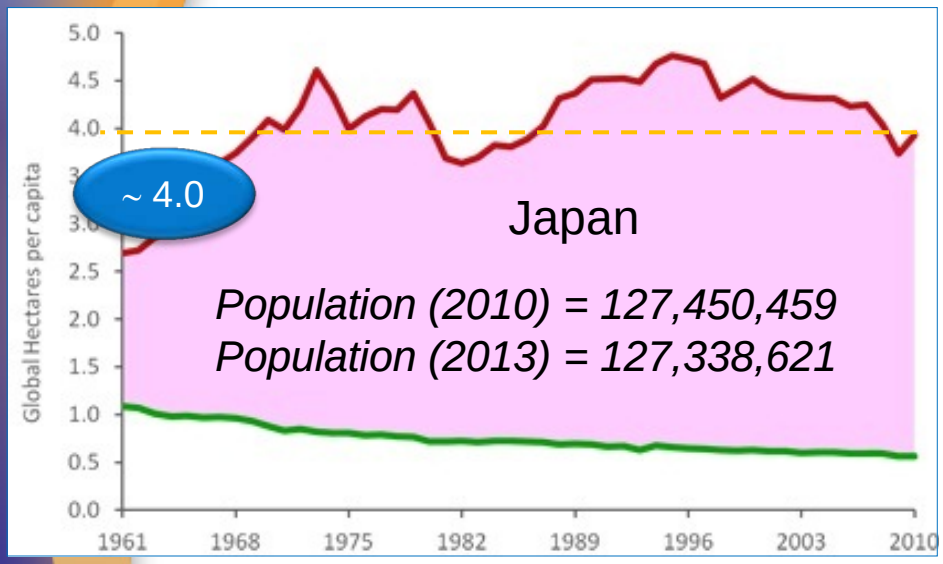


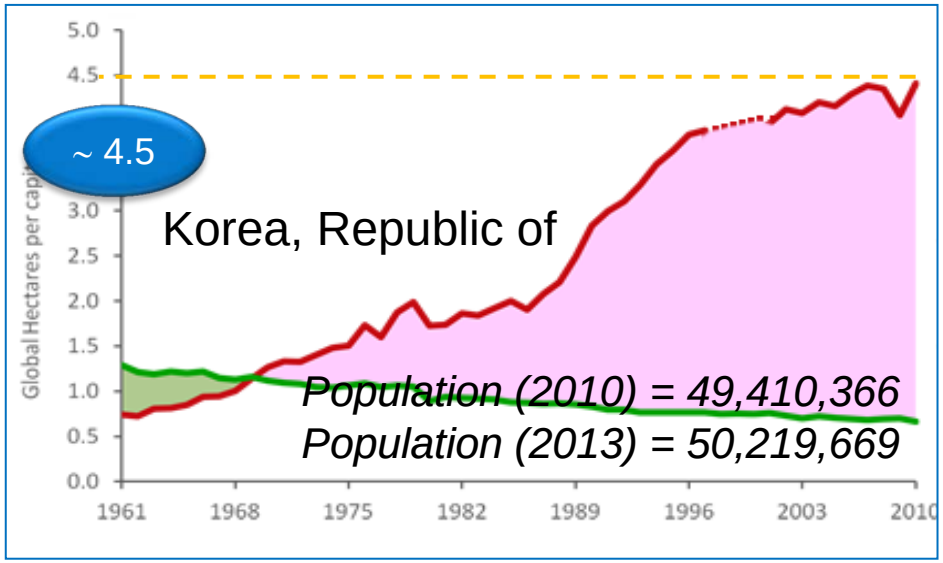
Source: http://www.footprintnetwork.org

Ecological Footprint vs Biocapacity









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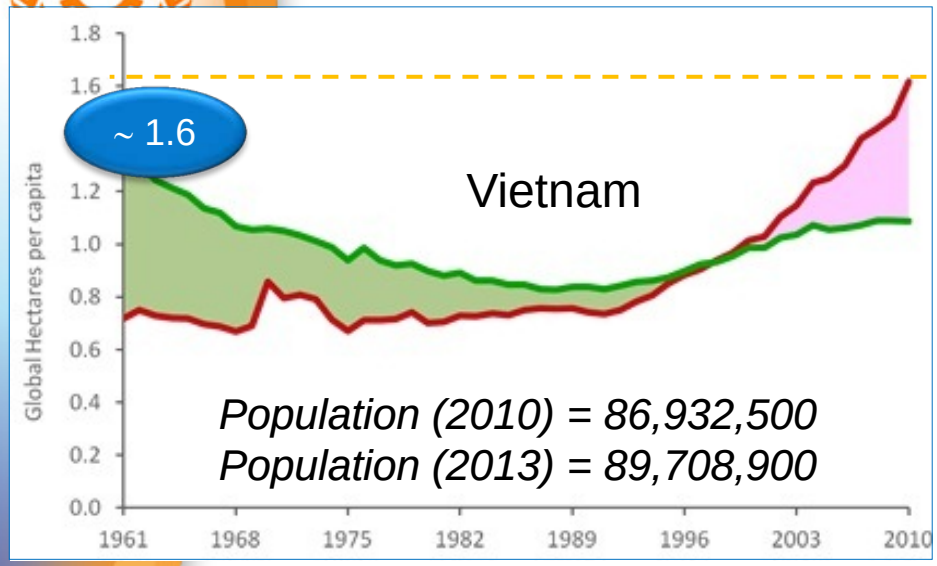
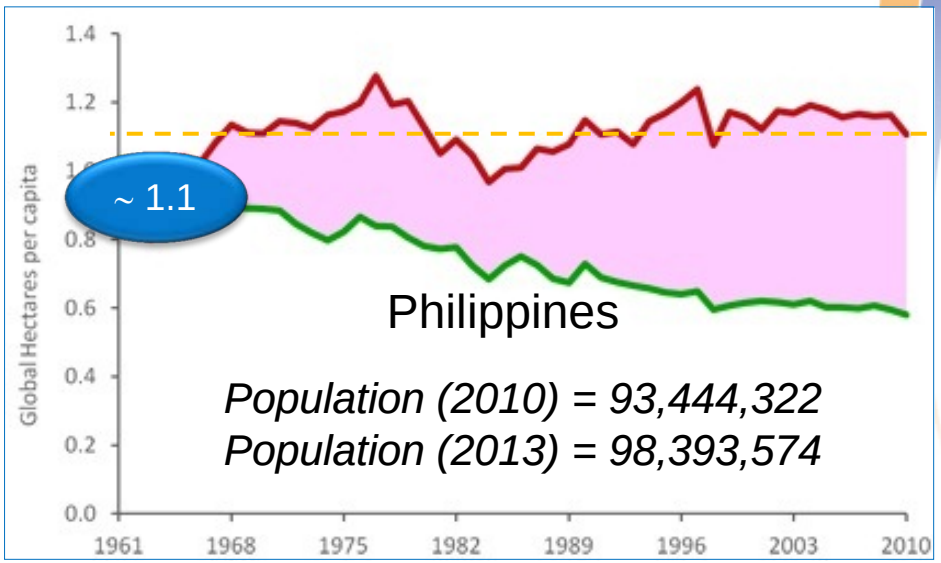
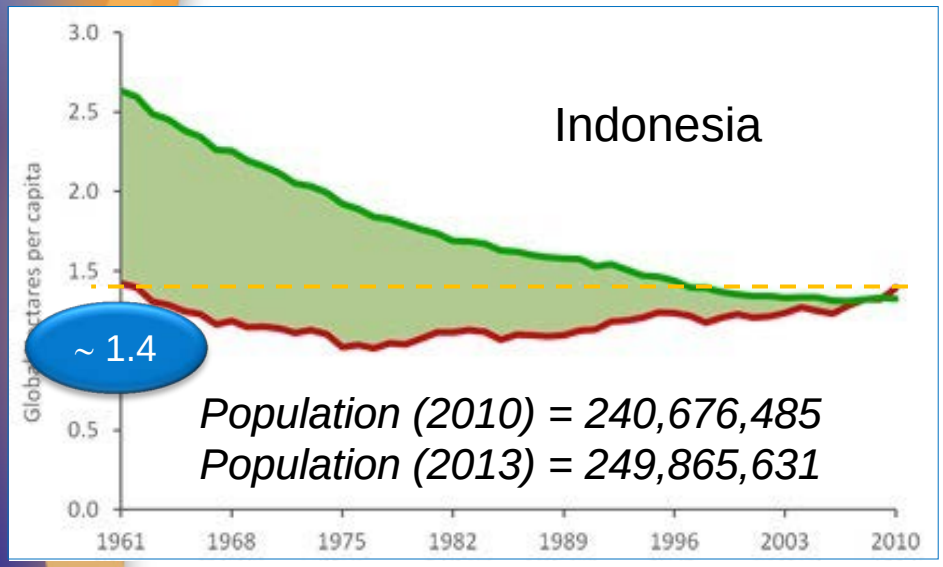
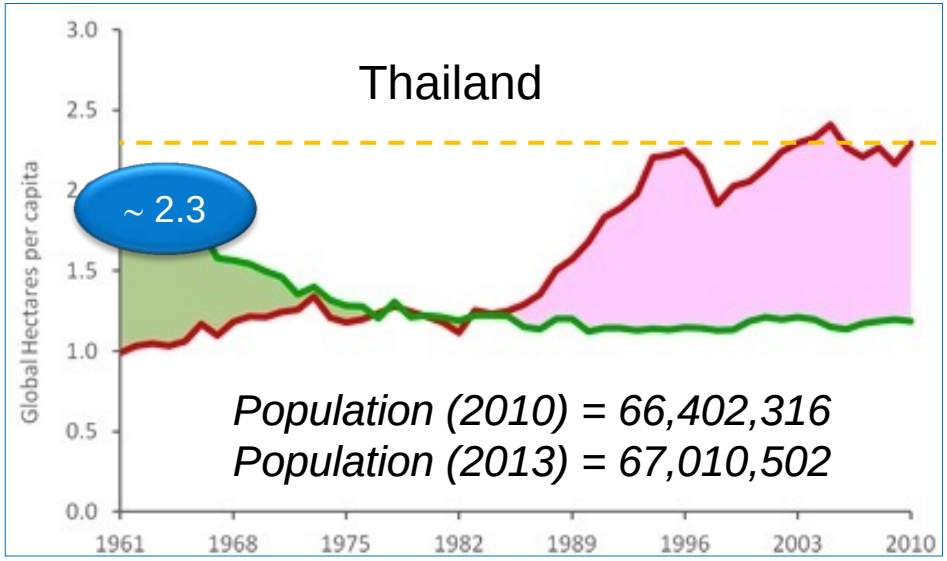
Ecological Footprint vs Biocapacity









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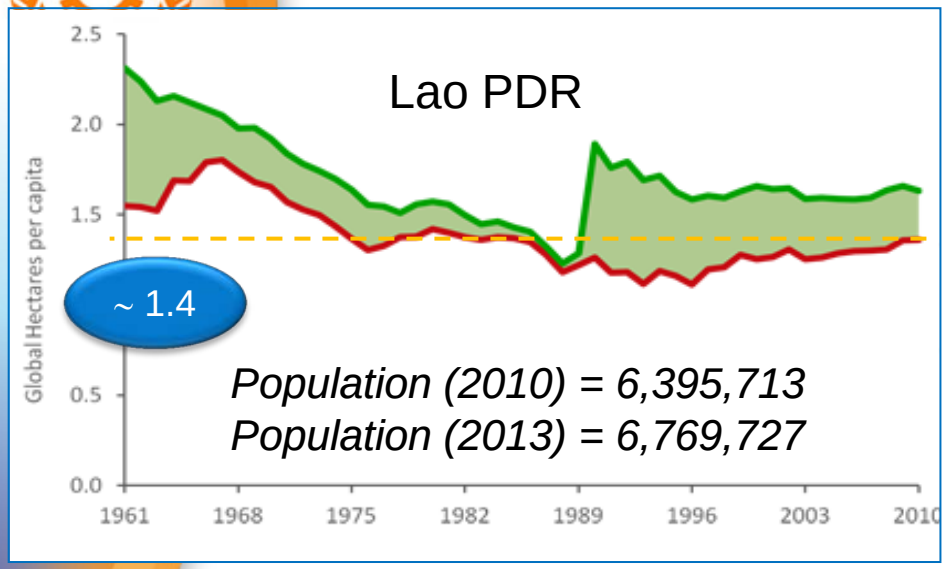
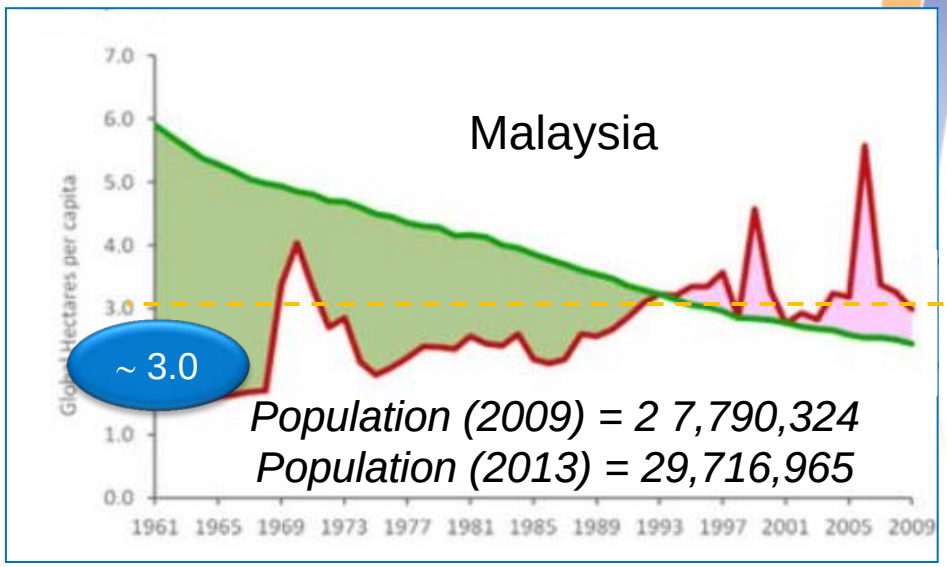
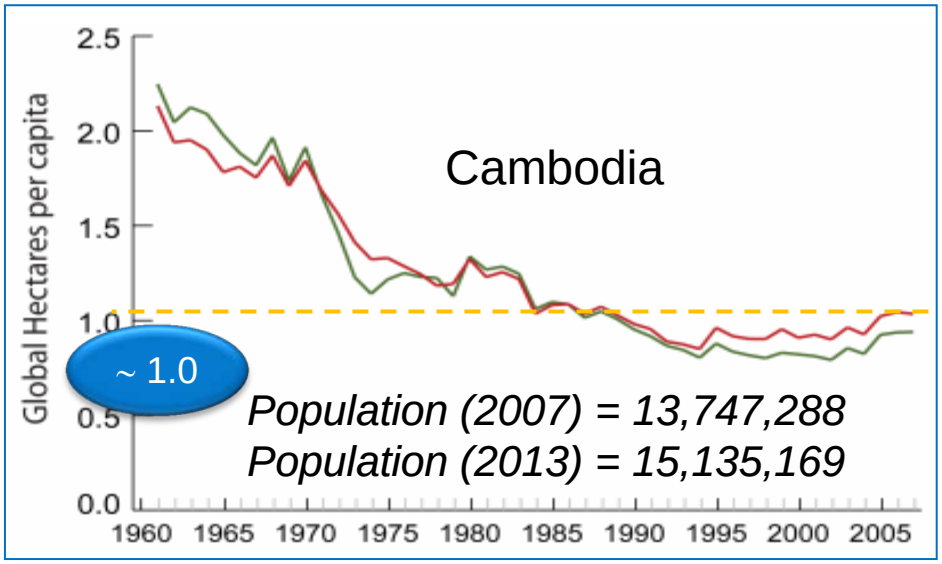
Ecological Footprint vs Biocapacity







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Rio de Janeiro 2012 (Rio + 20)

Green Economy,, SDGs, 10 YFP

Rio+20

Participants : **50,000**

Governments : **193**

Business Leaders : **1,800**

Declaration include Key issues ;

- **Green Economy**
- **Development of SD Goals**
- **UNEP SCP 10 Years Framework**
- **Sustainability Reporting : Country, Company**

Source: Rio+20 United Nations Conference on Sustainable Development, Rio de Janeiro, Brazil, 20-22 June 1012

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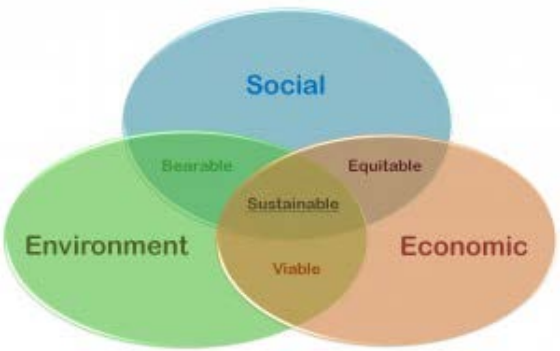
What is Sustainable Development (SD)?

"…development which **meets the needs** of current generations without compromising the ability of future generations to meet their own needs."

(Our Common Future Report, 1987)

At the core of sustainable development is the need to consider "three pillars" together: society, the economy and the environment. No matter the context, the basic idea remains the same – people, habitats and economic systems are inter-related.

(OECD Sustainable Development Linking economy, society, environment, 2005)



What is Sustainable Consumption and Production (SCP)?

Sustainable Consumption and Production (SCP) is about "the use of services and related products, which respond to **basic needs** and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of further generations". (Oslo symposium, 1994)

SCP is not necessarily about consuming less. It is about doing more and better with less.

Source: UNEP, The 10-Year Framework of Programmes on Sustainable Consumption & Production – Driving Sustainability, SCP Week, 30 October 2013, Seoul, Korea

SCP's holistic approach

Source: UNEP, ABC of SCP Clarifying Concepts on Sustainable Consumption and Production

SCP Policy tools

Economic Instruments

- Environmental Taxes
- Fees and User Charges
- Certificate trading
- **Environmental Financing**
- **Green Public Procurement**
- Subsidies

Regulatory Instruments

- **Norms and Standards**
- Environmental Liability
- **Environmental Control and Enforcement**

Cooperation Instruments

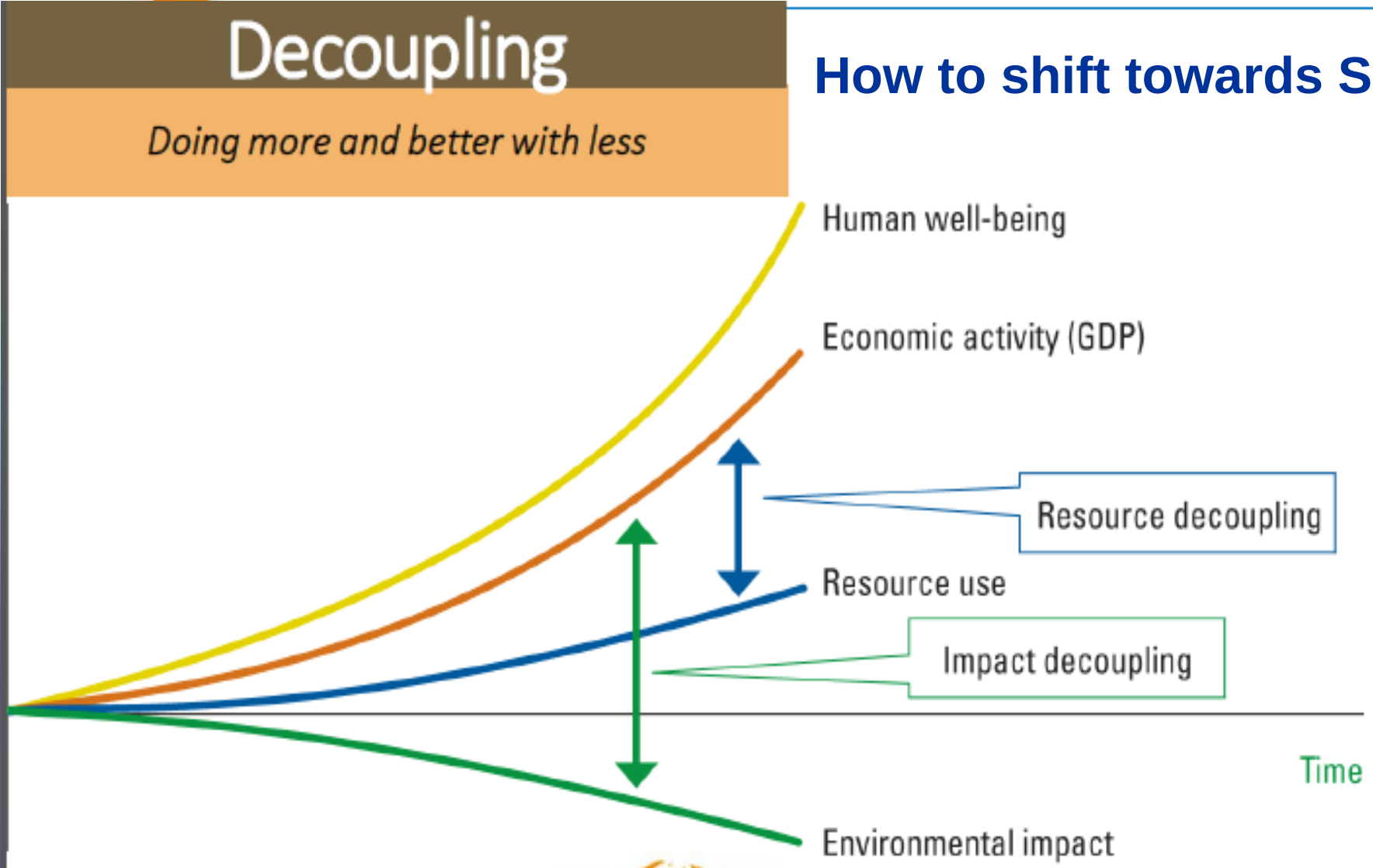
- Technology Transfer
- Voluntary agreements

Informational Instruments

- **Eco-labelling**
- **Sustainability Reporting**
- Information Centres
- Consumer Advice Services
- **Environmental Quality Targets and Monitoring**

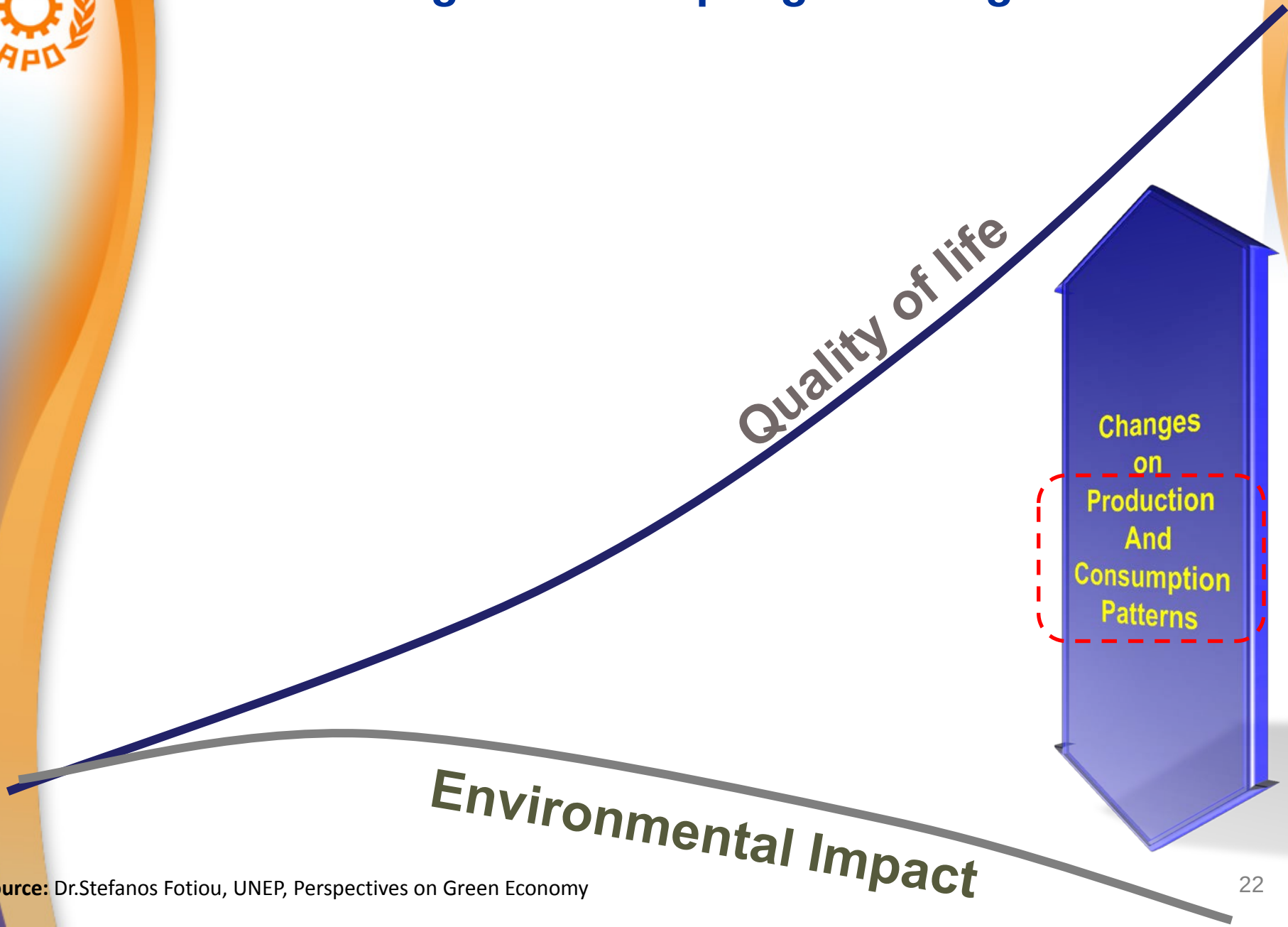
Source: Dr.Stefanos Fotiou, UNEP, Perspectives on Green Economy

How to shift towards SCP?



Source: UNEP, The 10-Year Framework of Programmes on Sustainable Consumption & Production – Driving Sustainability, SCP Week, 30 October 2013, Seoul, Korea

Addressing the decoupling challenge



Source: Dr.Stefanos Fotiou, UNEP, Perspectives on Green Economy

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What is Green Productivity (GP)?

- **Green Productivity (GP)** is a broad strategy for enhancing productivity and environmental performance. Used effectively it can lead to positive change in socio-economic development.
- Helps business to retain their competitive advantage while ensuring environmental protection.

Innovation is a primary driver of economic growth.

Green Productivity greens the process of innovation

GP Timeline

- The 1st Manila Declaration on GP, 2 December 1996
- The 2nd World Conference on GP, 9-11 December 2002
- The 3rd World Conference on GP, 4-6 November 2014

Source: APO, 2005, Handbook on Green Productivity

SCP vs GP

Sustainable Consumption and Production (SCP)

- Respond to basic needs
- Bring a better quality of life
- Minimize the use of natural resources and toxic materials as well as the emissions of waste and pollutants
- Focus in **country level**

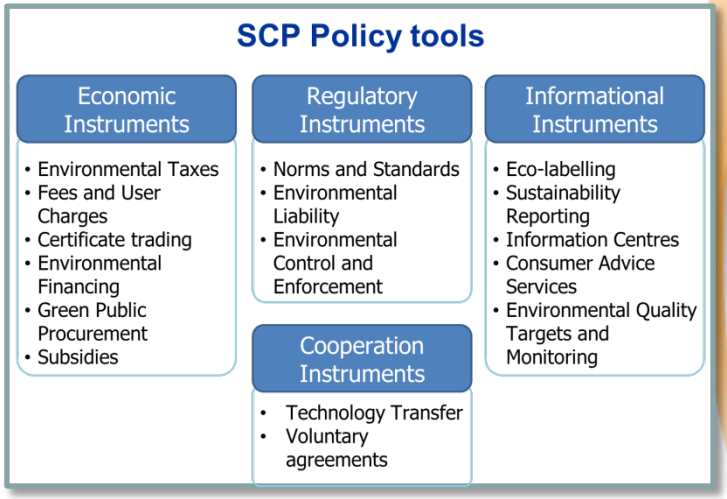
a key element for sustainable development

Green Productivity (GP)

- Enhance productivity = $\frac{Output}{Input} = \frac{Value\ of\ goods\ or\ services}{Cost\ of\ resources\ consumed}$
- Positive change in socio-economic development
- Enhance environmental performance
- Focus in **production sectors** (industry, agriculture and service sectors)

leads to sustainability

SCP vs GP



SCP

SC

SP

Others

Sustainable Public Procurement (SPP)

Green Products

Green Factories

Environmental Labels (EL)

- Eco-efficiency
- Cleaner production
- Pollution prevention

Industries act as consumers

CONTINUOUS IMPROVEMENT PRODUCTIVITY ENHANCEMENT
GP
SUSTAINABLE DEVELOPMENT ENVIRONMENTAL PROTECTION

GP

Industries act as producers

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GREEN OPTIONS
SG Living
OPPORTUNITY green
being green and being profitable
clickgreener.com
babycenter store
ENN ENVIRONMENTAL NEWS NETWORK
Ecological Footprint
ftc
eco in the market
ECO BIND
RESIN TECHNOLOGY
Green
Green Party of Aotearoa New Zealand
eco depo
million trees NYC
A PLANYC INITIATIVE WITH NYC PARKS AND NEW YORK RESTORATION PROJECT
LocalHarvest
real food. real farmers. real community
green leaves
vitamins
GREENFUEL
TECHNOLOGIES CORPORATION
ENVIROFIT
making the world fit for humanity
PLENTY
IT'S EASY BEING GREEN
gllgreen
THINK ACT PROTECT
PLAN IT GREEN
PRINTING
ecogeek
whole earth
Eco Enrichment
GREENPEOPLE
ENVIRONMENTAL CHOICE
CHOIX ENVIRONNEMENTAL
BAY AREA
GREEN BUSINESS
PROGRAM
eco-t
justgreen
Enviro
ENTREPRENEUR
ecohost.co.uk
CARBON NEUTRAL
Simple Steps to Non-Toxic Kids
eco
Go Green Initiative
Crispy Green.
real fruit, real taste, nothing else!
CSSmanía
Consulting Arborist Society
TRAVEL GREEN WISCONSIN
bp
CarbonNeutral
naturalpath
MEDIA
KINNEAR
20
FAMILY FARM CO-OP
YEARS
EcoComposite LLC
Beyond Organic
greeniq
HOW GREEN ARE YOU?
GREEN LIGHT
PROJECT
GoingGreen
planeteco
EcoScience Resource Group, L.L.C.
we
GAIAM
a lifestyle company
green BUSINESS
the ecovillage
AT CURRUMBIN
heartofgreen
ideal bite
a sweeter shade of green
green rewards
CLEAN & SIMPLE
Environmental graffiti
ECO LINE
HOME PRINTING AND PROJECT MANAGEMENT
basil
thedailygreen.com
eco CERTIFIED
Advanced Ecotourism
ECO BUY
member
BRIGHTER PLANET
Got2BeGreen
GREENDRINKS NYC
beyond green
greenblog
VivaTerra
ECO LIVING WITH STYLE
ecorazzi
RecycleBank
eco organics
css based
inhabitat
Down to Earth

Environmental Labels (EL)

- Seal of approval for the environmentally friendly products
- Market-driven tool for environmental improvement
- Convey information regarding the environmental friendliness of the product to consumers in simple and objective way
- Encourage the manufacturers to improve their technologies to a lower environmental impact

Source: Lunchakorn Prathumratana, Thailand Environment Institute (TEI), Eco Labels in AEC, NSTDA Annual Conference 2013.

Types of Environmental Labelling

- **Type I** (ISO 14024): Voluntary, multiple criteria-based, practitioner programs, based on life cycle considerations
- **Type II** (ISO 14021): Informative environmental self-declaration claims made by manufacturers, importers, distributors or retailers
- **Type III** (ISO 14025): Quantified product information label based upon independent verification using preset indices (life cycle assessment)

Source: ISO, Environmental Labels and Declarations-How ISO Standards Help

Type 1 Environmental Labels (27 Schemes)

Germany

Canada

Japan

Nordic


ROC

USA

Brazil

China

Korea


EU

Singapore

Thailand

HKFEP

Philippines

SSNC


Indonesia

NZ

Australia


India

Sweden

Russia

Croatia


Czech

HK


Ukraine

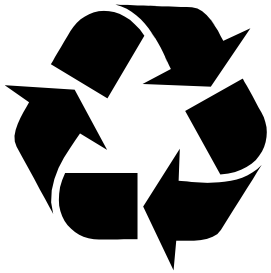

Malaysia

Israel

Only the best products can be awarded to use the logo;
Consumers may buy these products without doubt.

Source: Chaiyod Bunyagidj, Green Procurement, 1 Oct 2013

Type 2 Environmental Labels



Recyclable

Recycled Content

eco
Hitachi Ltd.

eco ideas
Panasonic Group

SCG eco value

Tostem Corp.

Anritsu Corp.

Green Policy Innovation
Fujitsu Group

Source: Chaiyod Bunyagidj, Green Procurement, 1 Oct 2013

Type 3 Environmental Labels

Electrolux

EPD

CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION FOR ER 8199B

Product description

The fridge/freezer ER 8199B is a low energy product with an energy consumption of 0.60 kWh/day. Inside, the refrigerator has glass shelves, one shelf for bottles. It also contains fruit/vegetable drawers and door shelves in transparent plastic. The freezer section contains four transparent drawers. The fridge/freezer contains a temperature display, a light alarm, and automatic defrost in the fridge section.

Model	ER 8199B
Storage volume (fridge/freezer)[1]	193+95 liters
Width	595 mm
Height	2000 mm
Depth	600 mm
Energy efficiency class[2]	A
Energy consumption[3]	219 kWh/year
	0.60 kWh/day
Noise[4]	40 dB(A)
Refrigerant	Isobutane R600a
Blowing agent	Cyclopentane

15% of the steel on the doors and cover is pre-painted and 85% of the steel is powder coated. The metals are not surface-treated with Cd, Cr or Ni. The metal coatings contain no pigment or additives based on Cd, Cr, Pb or Hg or their compounds. The plastics do not contain Cd, Pb, Hg or their compounds.

Material declaration

The weight of the product is 89 kg and consists of the materials:

Material content	
Metals	46%
• Steel	1%
• Copper	1.4%
• Aluminum	
Plastics	10.5%
• Insulation (Pur)	16%
• Other plastics	5.8%
Glass	17.1%
Compressors	0.4%
Blowing agent	0.2%
Refrigerant	0.6%
Electronic components	1%
Other	

Manufacturer

The product is manufactured by AB Electrolux in Mariestad, Sweden. The manufacturing plant is planning to implement the international environmental management system ISO 14001 certification in the year 2000. LCA data for the manufacturing plant in Mariestad covers 1997.

Contact person for the environmental declarations: Ann Spaak, Electrolux Hemprodukter AB.
Tel: +46 (8)738 60 00
Fax: +46 (8)738 66 11
For more information about AB Electrolux see the Internet, www.electrolux.com

Environmental Performance Declaration

The environmental performance declaration is based on the results from life cycle assessment, LCA. The results from the LCA have been divided into three phases.
The production phase
- manufacturing of all materials,
- transports of all these materials from suppliers,
- production at the factory in Mariestad, where the main production processes are coating, foaming, metalwork and assembly.

he consumer use phase
the time the product is used by the consumer
transport from manufacturing plant to consumer.
end-of-life phase
transports from consumer to disposal facility
scrap metal processes

Assumptions made for the analysis

The environmental information presented is based on the assumption that the product is manufactured and used in Sweden, using electricity produced in Sweden.[5]
Energy consumption for 17 years of use is presented in the results for the consumer use phase.[3]
The results are for the functional unit of one fridge/freezer.
Electronic components are excluded in the life cycle assessment.
The materials that are not followed from cradle to grave are hot melt and magnet strip.

	Production	Consumer use	End of life (Sv)	Total
enewable resources				
l resources (kg)	252	8	0.006	260
esources (kg)	12400	2070	0.057	14500
ble resources				
resources (kg)	1.24	98	0.081	99.3
ources (kg)	10700	1650	-	12400
sumption	23100	3720	0.057	26800
gases	225	103	69	397
ing gases	0	0	0	0
es	70	4.3	2.9	77.2
one gases	0.094	0.026	0.17	0.29
ompounds	5.4	0.9	0.8	7.1
rces	3.3	-	51	54.3
	-	-	244	244
	0.13	0.08	0.32	0.53
	414	179	12	605

*Data for the recycling at the supplier is not included.

EPD®

Sweden

Rep. of Korea

ECO LEAF
Product Environmental Aspects Declaration
製品環境情報
http://www.jemai.or.jp

Eco Leaf (Japan)

Source: Chaiyod Bunyagidj, Green Procurement, 1 Oct 2013

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GPP in Taiwan

- **Article 96 of Government Purchasing Act (1999)**

  may purchase Green Mark products or equivalents preferentially

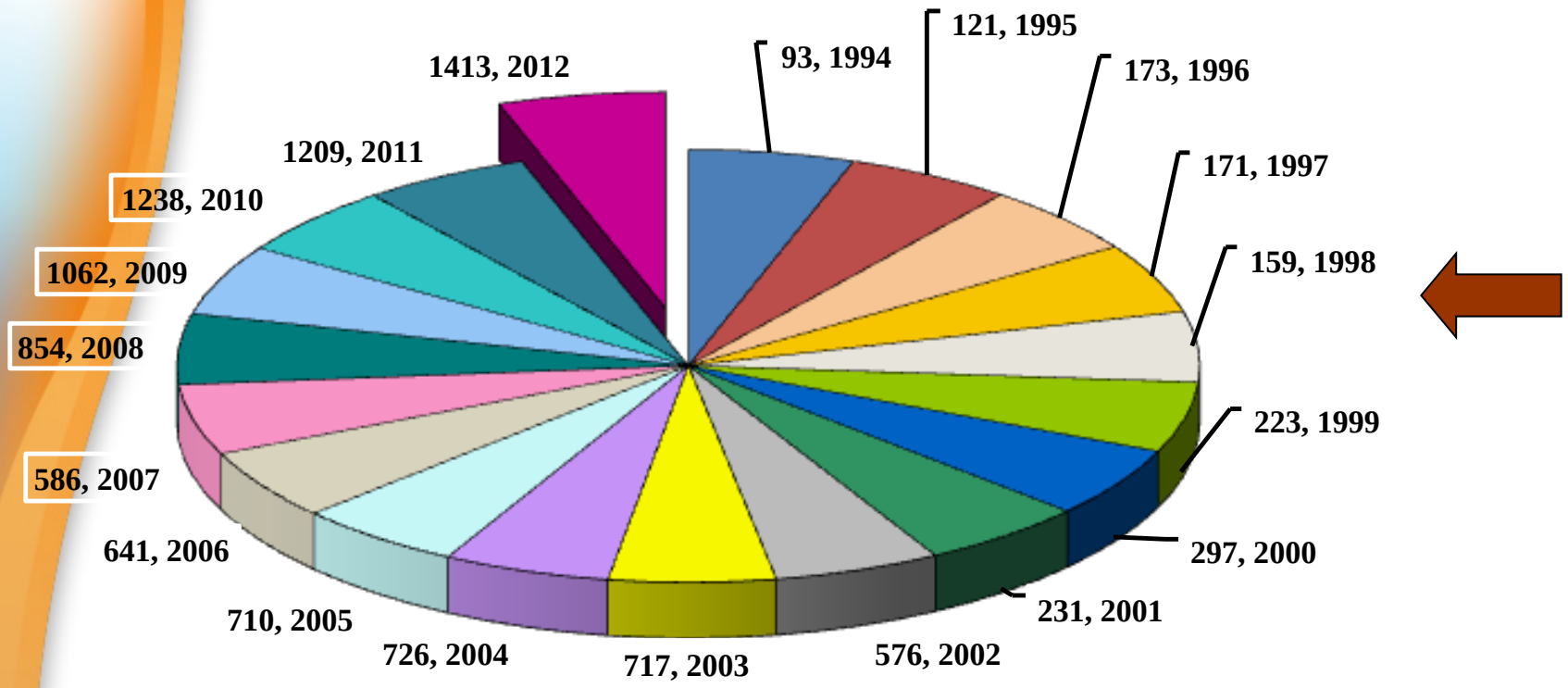
- *Action Plan for Implementing Green Purchasing by Government Agencies (2001)*
- **Article 22 of Resource Recycling and Reuse Act (2003)**

  shall purchase environmentally preferable products

- Mandatory for all levels of government agencies, institutions and state enterprises to report results to Taiwan Environmental Protection Administration (TEPA)
- Annual Target: 50% (2002)~ 97% (2012)
- 40 designated product categories (2013)
- Green Mark labelled products enjoy top priority purchasing

Source: Environment and Development Foundation Chair, Green Purchasing Alliance, the 4th International Conference on Green Purchasing, 18-20 Sep. 2013

Number of Green Mark Licensed Products



Annual GPP Spending

1 NT = 0.033 USD

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
M NT	2635	5613	5708	6776	6382	5921	6082	6137	8056	7329

Source: Environment and Development Foundation Chair, Green Purchasing Alliance, the 4th International Conference on Green Purchasing, 18-20 Sep. 2013

GPP in Japan

Establishment

1989: Eco-mark project has launched
1994: Shiga Pref. established guidelines for Green purchasing
1995: Government-led trial project
1996: Green Purchasing Network has established

Promoting

2000: The Act "The government's promotion of procurement of environment items(Green purchasing)"
2003 Action plan for municipalities' and companies' promotion of Green purchasing (The target year was extended to 2015 from 2010).

Development /enlargement

2005 International Green Purchasing Network has established
2007 Green Purchasing Guidelines for local government
2007 The Act "Eco-Friendly Business Promotion" concerning promotion of the contract intended for reduction of green house gas
2012 Promotion of international cooperation network was stipulated in Basic environment policy outline to promote Green purchasing activities in Asian countries.

Source: Noriyuki Nozaki, Ministry of the Environment, Japan, Status of GPP and GPP harmonization with Eco-labelling in Japan, UNEP Regional Workshop on Sustainable Public Procurement and Eco-labelling, October 24th, 2014

Green purchasing in public procurement

The Act Concerning Promoting of Procurement of Eco-friendly Goods and Services by the Governments and other Entities

<Purpose> (Act on Promoting Green Purchasing)

- Promote procurement of Eco-friendly goods and service within each Ministries and incorporated administrative agencies
- Disclose information of Eco-friendly products

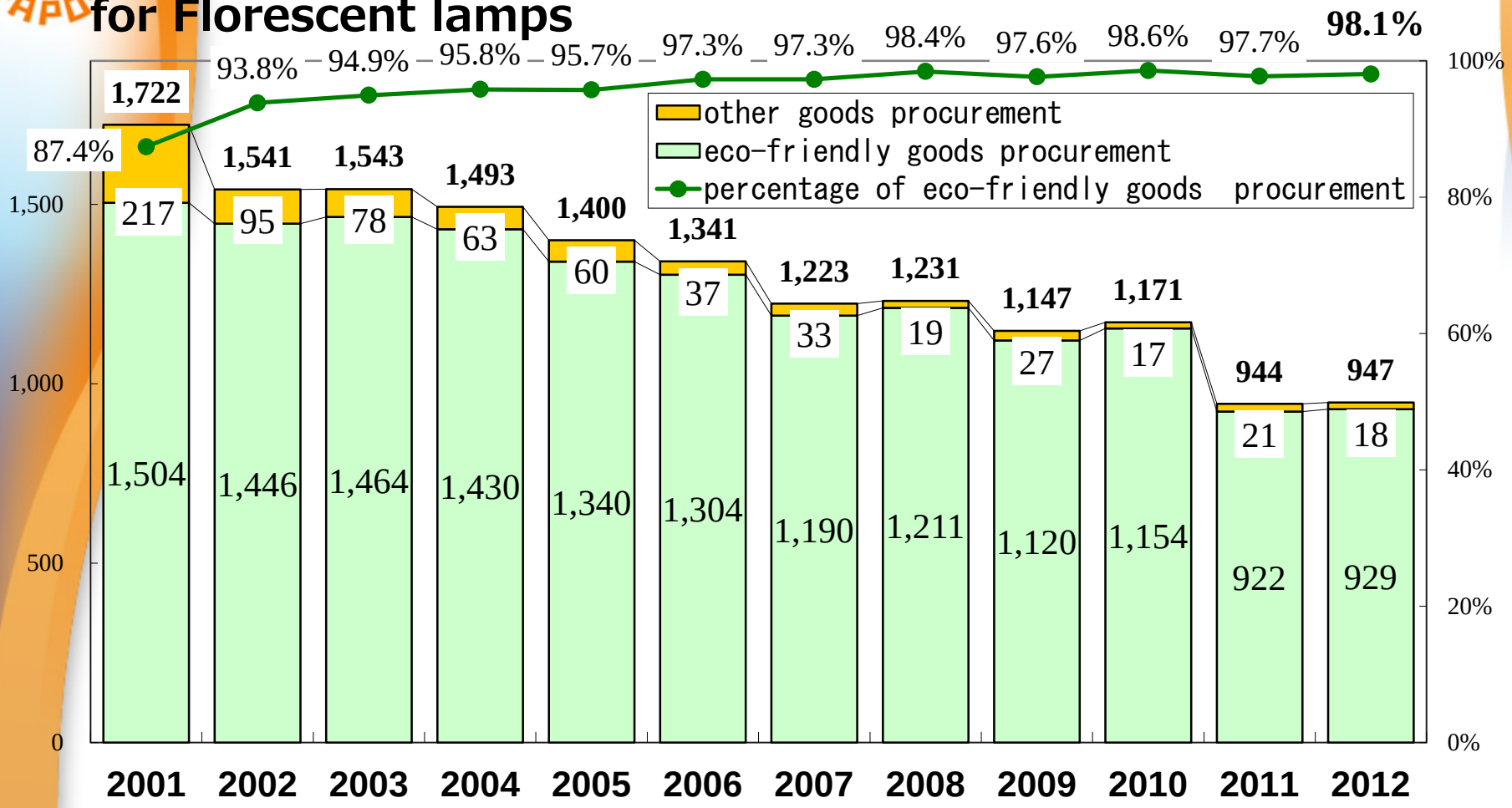
- Spread of green procurement to local government and private sector
- Promotion of demand shift to Eco-friendly products in market mechanism

Sustainable Development
with low environmental loads

Source: Noriyuki Nozaki, Ministry of the Environment, Japan, Status of GPP and GPP harmonization with Eco-labelling in Japan, UNEP Regional Workshop on Sustainable Public Procurement and Eco-labelling, October 24th, 2014

Implementation status of GPP

Total procurement and green purchases ratio for Florescent lamps

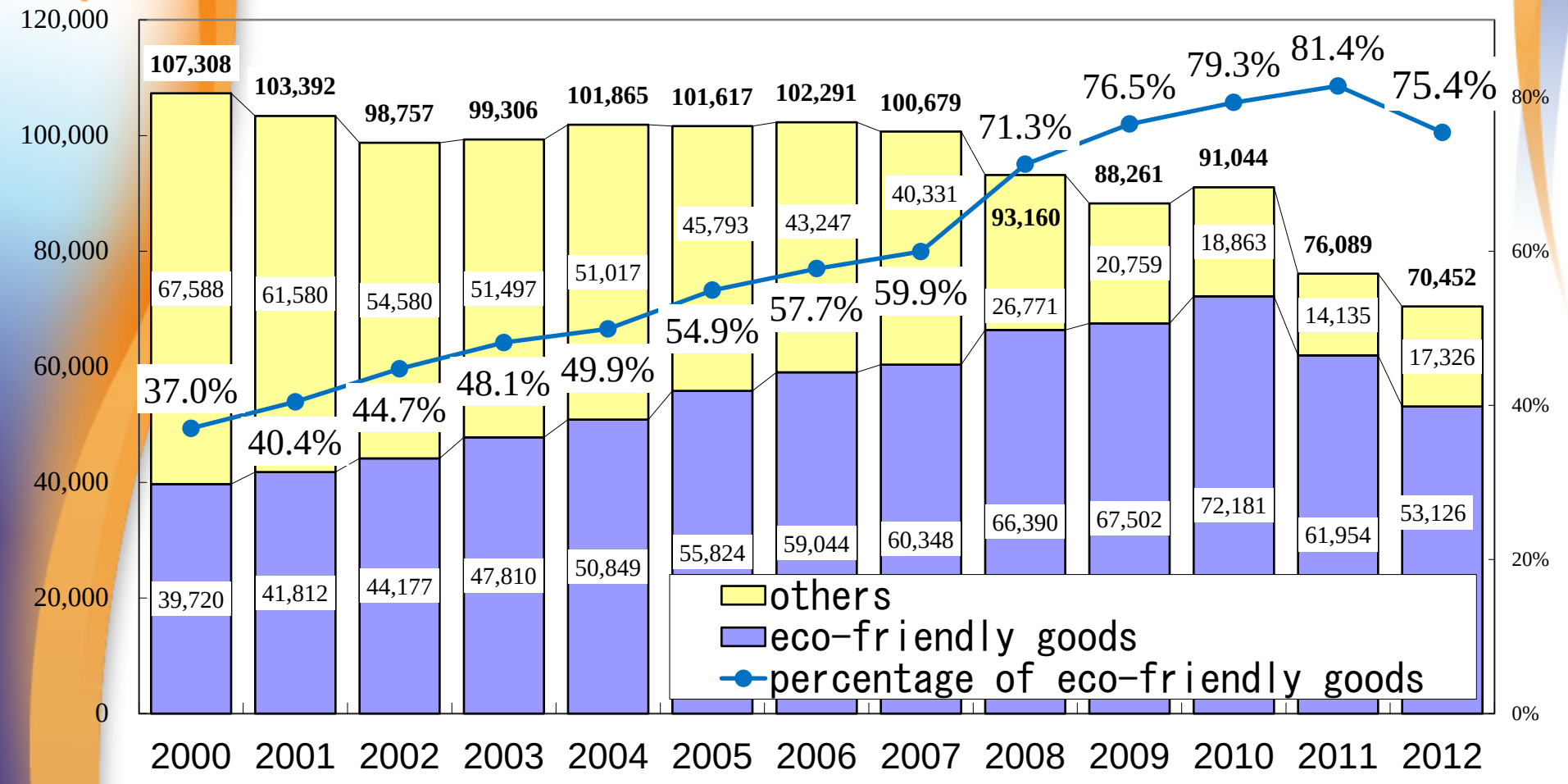


98% of florescent lamps procured by Ministries and agencies etc. are eco-friendly

Source: Noriyuki Nozaki, Ministry of the Environment, Japan, Status of GPP and GPP harmonization with Eco-labelling in Japan, UNEP Regional Workshop on Sustainable Public Procurement and Eco-labelling, October 24th, 2014

Effect of GPP on the market

Market share of eco-friendly florescent lamps



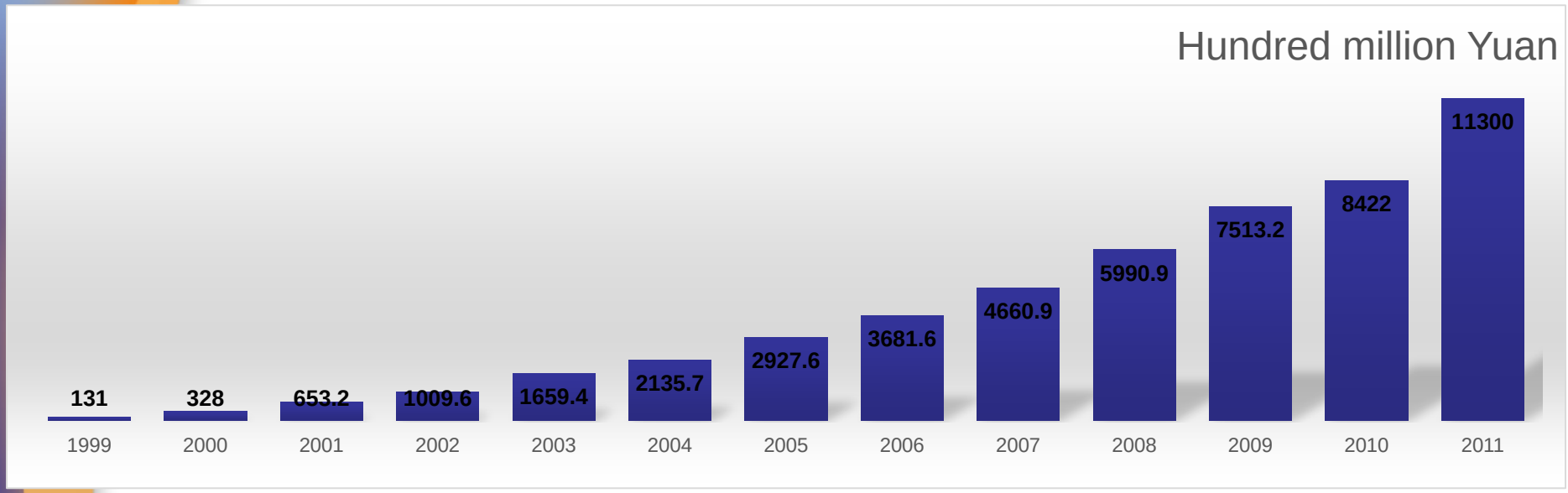
75 % of florescent lamps in the market are eco-friendly

Source: Noriyuki Nozaki, Ministry of the Environment, Japan, Status of GPP and GPP harmonization with Eco-labelling in Japan, UNEP Regional Workshop on Sustainable Public Procurement and Eco-labelling, October 24th, 2014

GPP in China

China government Procurement scale

- Since implementation of "**The law** of government purchase of PRC" in Jan.1, 2003, China government procurement has increased from 13.1 billion Yuan (2.14 billion USD) in 1999 to 1,130 billion Yuan (184.86 billion USD) in 2011.



Government procurement scale from 1999 to 2011

Source: China Environmental United Certification Centre Co., Ltd., the 4th International Conference on Green Purchasing, 18-20 Sep. 2013

Basis of laws

Government Procurement Law of PRC

- Government procurement shall be conducted in such a manner as to facilitate achievement of the goals designed by State policies for economic and social development, including but not limited to environmental protection, assistance to underdeveloped or ethnic minority areas, and promotion of the growth of small and medium-sized enterprises.

The Law of PRC on Promotion of Cleaner Production

- People's governments at various levels shall give first priority to purchasing energy and water-conservation products and products made out of recycled waste which are conducive to protection of the environment and resources.

Circular Economy Promotion Law of PRC

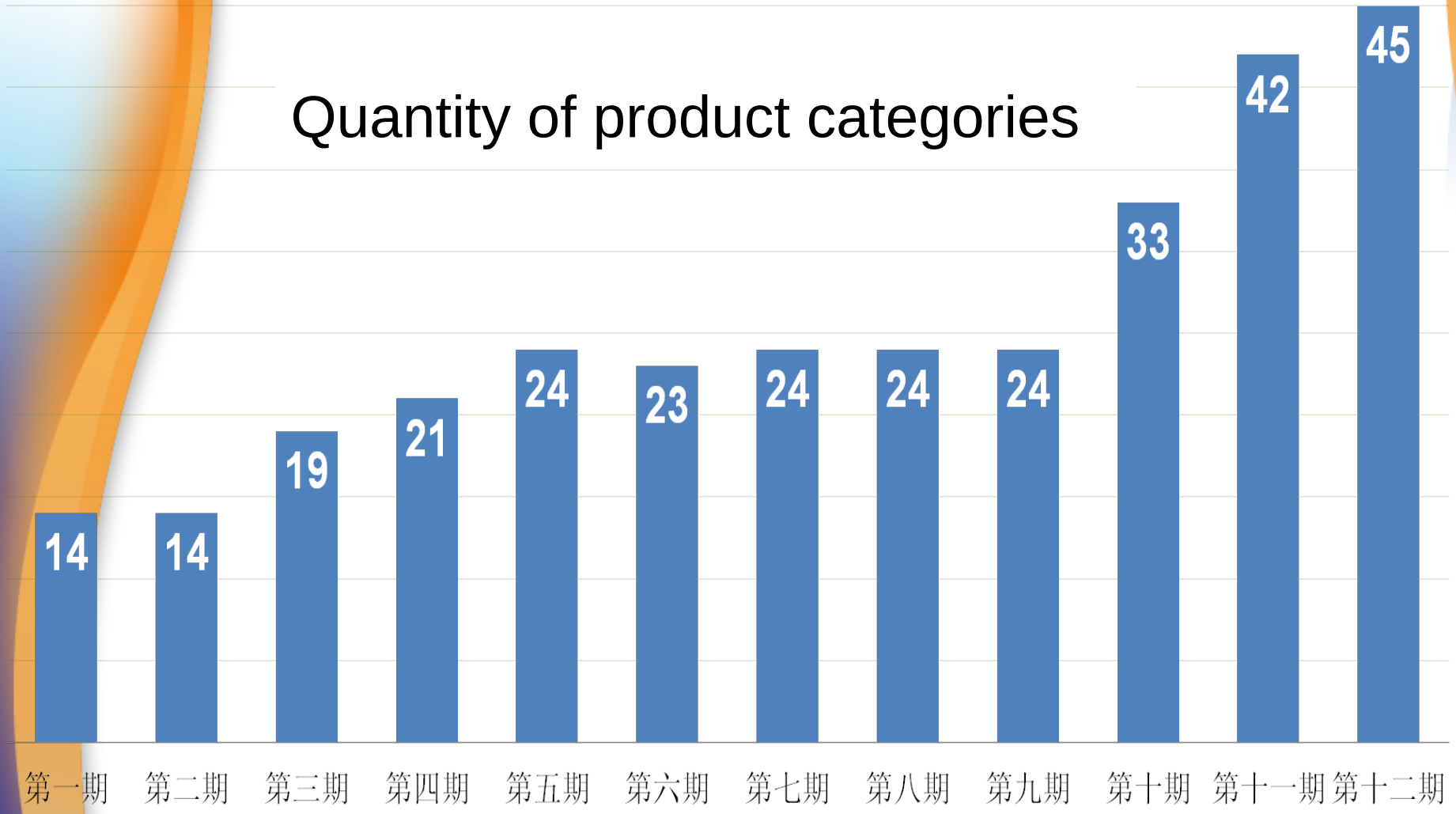
- The State shall implement a government procurement policy conductive to promoting circular economy. Where any procurement uses fiscal capital, products and reproduced products that may save energy, water and materials and be conductive to environment protection shall be purchased preferentially.

Law of PRC on the Prevention and Control of Environmental Pollution by Solid Wastes

- Where any procurement uses fiscal capital, products and reproduced products that may save energy, water and materials and be conductive to environment protection shall be purchased preferentially.

Source: China Environmental United Certification Centre Co., Ltd., the 4th International Conference on Green Purchasing, 18-20 Sep. 2013

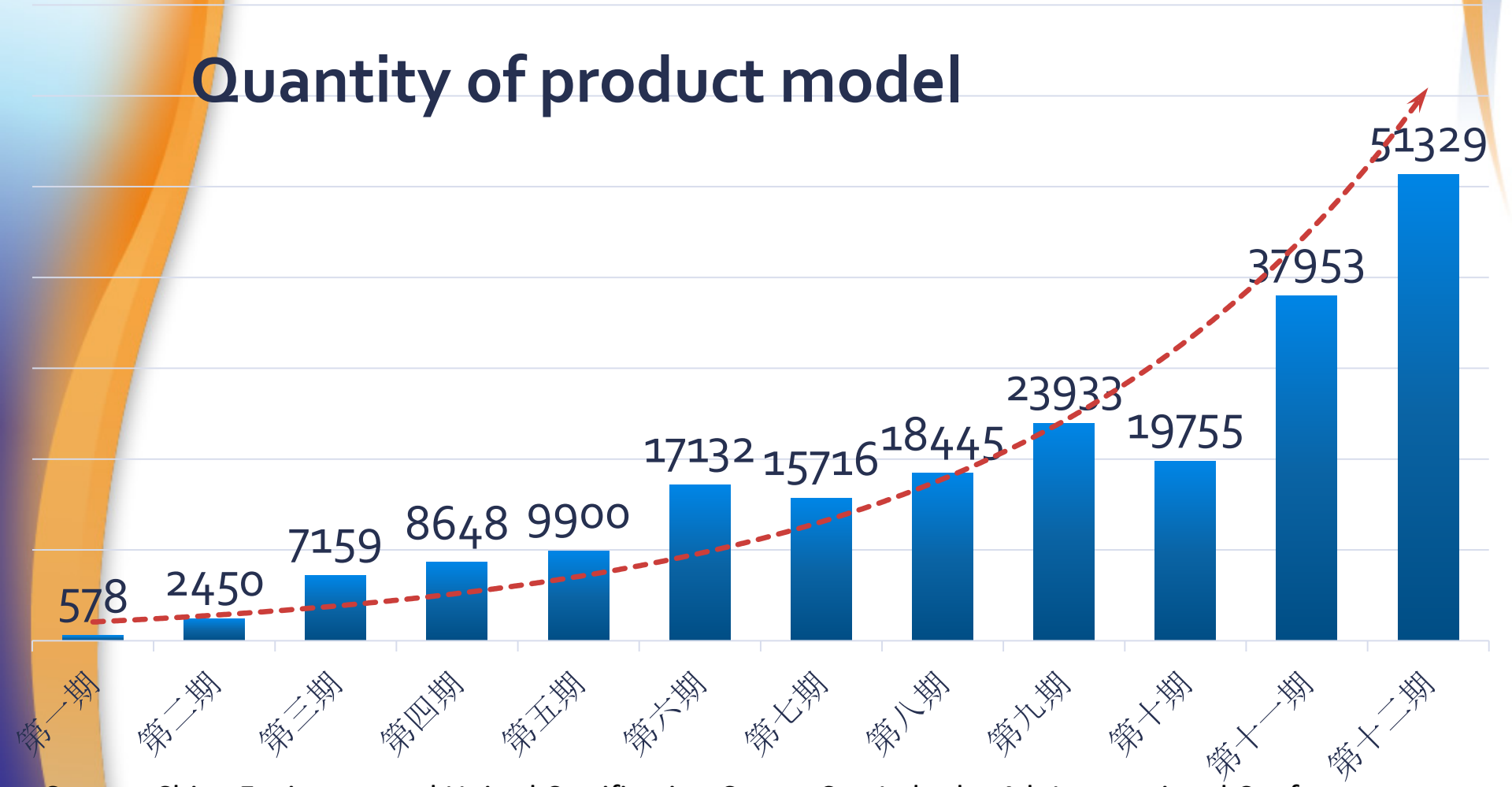
Current situation of China GPP



Source: China Environmental United Certification Centre Co., Ltd., the 4th International Conference on Green Purchasing, 18-20 Sep. 2013

Current situation of China GPP

Quantity of product model

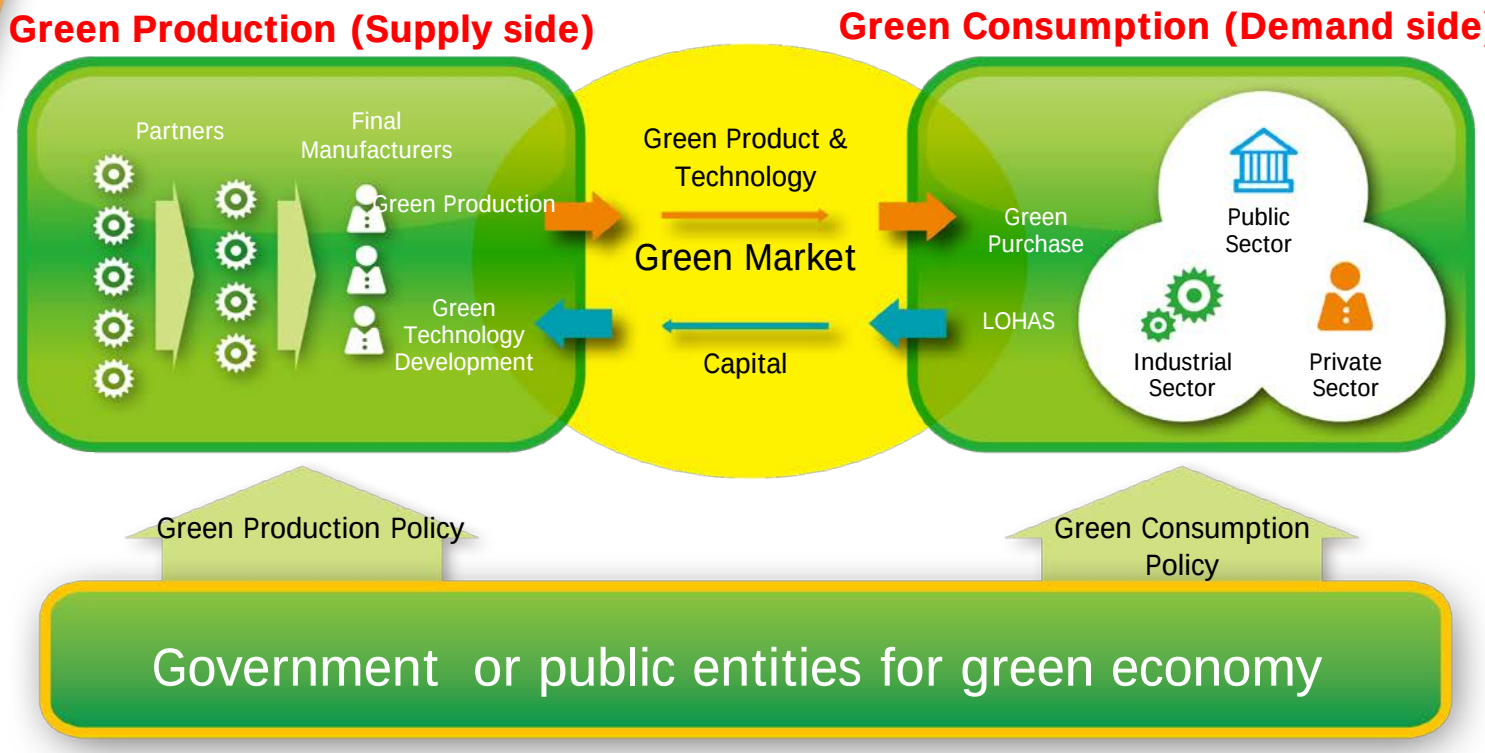


Source: China Environmental United Certification Centre Co., Ltd., the 4th International Conference on Green Purchasing, 18-20 Sep. 2013

GPP in Republic of Korea

Green Economy and Green Procurement Policy

- ✓ **Green Production & Consumption are the key elements to drive Green Economy**
- ✓ **Green Procurement stimulates the demands on greener products, thereby creating a virtuous cycle of green production & consumption**



Source: KEITI, Korea, the 4th International Conference on Green Purchasing, 18-20 Sep. 2013

Background of SPP in Korea

Act to Promote the Purchase of Eco-friendly Products (2005)

- ✓ **Since 2005, public institutions have purchased eco-products**

> **"The heads of public institutions shall purchase green products, when they intend to purchase any product" – Article 6**
>
> **"The heads of public institutions shall aggregate purchase records of green products pursuant and submit such purchase records to the Minister of Environment" – Article 9**

- ✓ **Target Organizations : 879 government and public institutions (Total 30,000 institutions including affiliated organizations)**
- ✓ **Scope of Eco-Products : Eco-Label Products, Good Recycled mark products, Other eco-products satisfying criteria established by the MOE**

Source: Kyu Woong Ko, Researcher, Sustainability Strategy Office, Korea's Green Public Procurement & Lessons Learned, 2014 Regional Workshop on Sustainable Public Procurement and Eco-labeling> 25th September 2014

Background of SPP in Korea

- **Certified or Meet the criteria set either by the Korea Eco-Label or the Good Recycled Mark**
- **Meet other environmental standards set by MOE in consultation with the relevant ministries**

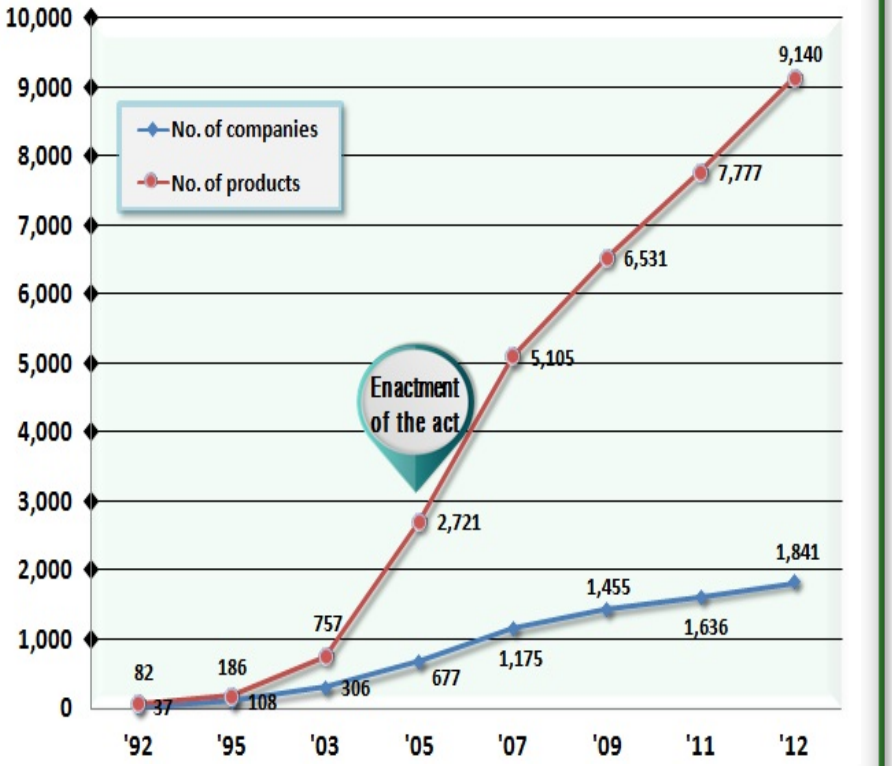
	Korea Eco-Label	Good Recycled Mark
Product groups	150 categories including office equipment, construction materials	15 categories including waste paper, glass
Number of Products	1,928 companies, 12,114 products (As of July 2014)	191 companies, 244 products (As of July 2014)
Certification Authority	Ministry of Environment	Ministry of Trade, Industry and Energy
Website	http://www.greenproduct.go.kr	http://www.gr.or.kr

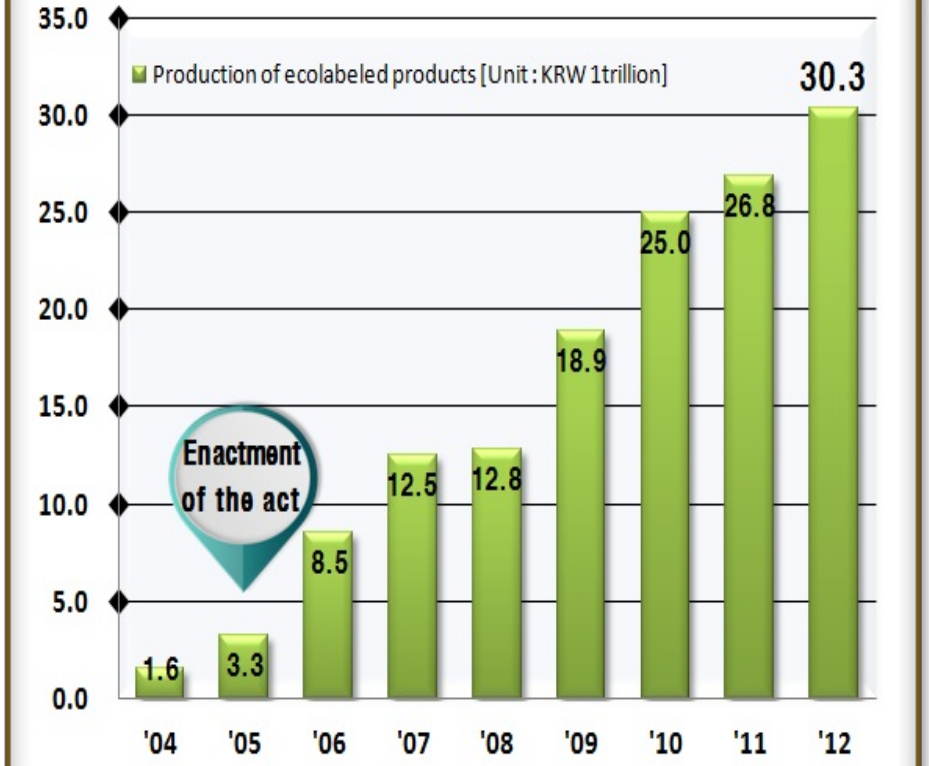
Source: Kyu Woong Ko, Researcher, Sustainability Strategy Office, Korea's Green Public Procurement & Lessons Learned, 2014 Regional Workshop on Sustainable Public Procurement and Eco-labeling> 25th September 2014

GPP Promotion Activities

- Since the enactment of the act, the number of manufacturers and certified products have been on a rapid rise
- Competition leads to better quality and price

- Sales of ecolabeled products have reached USD 26.8 billion
- Relevant industries such as parts and materials are going green as well





Source: KEITI, Korea, the 4th International Conference on Green Purchasing, 18-20 Sep. 2013

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Background of SPP in Thailand

Policies and plan relevant to SCP in Thailand

- 11th National Economic and Social Development Plan
- Environmental Quality Management Plan (EQM Plan)
- Green Public Procurement Plan

Source: Mr. Numpol Limprasert (Vice Chairman, Executive Environment Committee), The Industrial Environment Institute, The Federation of Thai Industries (F.T.I.), Sustainable Public Procurement in Thailand

Background of SPP in Thailand

Green Public Procurement Plan

(1st Green Public Procurement Plan)

For 2008 – 2011, was approved by the Cabinet in 2008.

The Pollution Control Department (PCD) within Ministry of Natural Resources and Environment was assigned to implement GPP Plan with relevant ministries and stakeholders.

Objective to encourage governmental units in implementing GPP

Target groups are governmental departments within ministries both in the central Bangkok and regional offices

Source: Mr. Numpol Limprasert (Vice Chairman, Executive Environment Committee), The Industrial Environment Institute, The Federation of Thai Industries (F.T.I.), Sustainable Public Procurement in Thailand

Result Of 1st GPP Plan

Number of Products and services

- 14 product and 3 services

Target for Implemented agencies

- 100% Central Government agencies (170)

Volume of Green products purchased

- 861 Million baht (25.8 Million USD) from 2,090 Million baht (62.7 Million USD)

Market Impact

- number of applicants for Thai Green Label is increased significantly

Source: Araya Nuntapotidech, Deputy Director-General Pollution Control Department (PCD), Green Public Procurement in Thailand, 4th International Conference on Green Purchasing 18 September 2013

Background of SPP in Thailand

Green Public Procurement Plan

(2nd Green Public Procurement Plan)

For 2013 – 2016, was approved by Pollution Control Committee

Objectives

- To support in green production and to increase green products in markets
- To change consumption behaviors to sustainable consumption

Target groups

- Governmental departments (both within ministries and municipalities)
- State enterprises, public organizations, universities
- Private sector (production, services and distributors) and general public

Strategies

- Stimulating green products
- Supporting sustainable consumption in public, private and general public
- Monitoring and steering the GPP plan

Source: Mr. Numpol Limprasert (Vice Chairman, Executive Environment Committee), The Industrial Environment Institute, The Federation of Thai Industries (F.T.I.), Sustainable Public Procurement in Thailand

Example: Existing scenario in ASEAN

Country	No. Of EL Categories	EL Since	Laws on SPP
Cambodia	N/A		Draft law 2012
Indonesia	12	2004	None yet
Lao PDR	None		None yet
Malaysia	37	2004	None specific
Myanmar	-	-	Nil
Philippines	38	2002	Since 2005
Singapore	16	1992	None specific
Thailand	23	1994	Since 2008
Vietnam	14	2009	None but related laws + Draft in process

Source: Rajan R Gandhi, APRSCP, Harmonisation of Different Labels in Support of SPP, Regional Work on SPP and Ecolabelling, Beijing, 24-25 Sep. 2014

Example: Existing scenario in “+3”

Country	No. Of EL Categories	EL Since	Laws on SPP
China	96	1993	Several, incl Govt Procurement Law, 2003
Japan	56	1989	Several, incl Law on Promoting Green Purchase
South Korea	150	1992	Act on Promotion of Purchase of Green Products

Source: Rajan R Gandhi, APRSCP, Harmonisation of Different Labels in Support of SPP, Regional Work on SPP and Ecolabelling, Beijing, 24-25 Sep. 2014

Environmental Benefit of Green Mark Program (Chinese Taipei)

Product Categories

Subgroup	Criteria	Subgroup	Criteria
IT Products	18	Cleaning Agents	8
Home Appliances	17	Services	8
Commodities	17	Biodegradable Products	7
Recycled and Reused Products	11	Water-saving Products	4
Energy-saving Products	11	Industrial Products	4
Office Equipments	11	Products from Organic Matter	2
Building Materials	10	Products using Solar Energy	1

Source: Yao-Tien Chang, Environment and Development Foundation, Chinese taipei, Criteria Development and Analysis of Environmental Benefit of the Green Mark Program, GEN AGM, Beijing, China, 2014.09.26

Environmental Benefit of Green Mark Program (Chinese Taipei)

- **Analysis of Environmental Benefit (Version I)**

Case Study: Air Conditioner

Air Conditioner Criterion

- Energy Saving：energy efficiency shall meet the requirements of Taiwan Energy Labeling Program
- Noise：

Cooling capacity (kW)		Indoor side noise (dB(A))	Outdoor side noise (dB(A))
Integrated	Cooling capacity ≤ 2.2	≤ 50	≤ 53
	2.2 < Cooling capacity ≤ 4.0	≤ 53	≤ 57
	4.0 < Cooling capacity	≤ 58	≤ 62
Split-type	Cooling capacity ≤ 2.2	≤ 39	≤ 50
	2.2 < Cooling capacity ≤ 4.0	≤ 47	≤ 55
	4.0 < Cooling capacity ≤ 7.1	≤ 45	≤ 56
	7.1 < Cooling capacity	≤ 52	≤ 61

- Materials, accessories and components：
  - ✓ No Cd, Pb, Hg, Cr^{6+} in surface coating material
  - ✓ No RoHS material & SCCP in plastic parts
- ODC free cooling agent
- Packaging material from recycled paper (80%)
- Recyclable：Designed for disassembly, Plastic marking

- Parameters：(Follow EPEAT EEBC)
  - ✓ Energy saving
  - ✓ Material saving
  - ✓ CO_2 reduction
  - ✓ Air pollution reduction
  - ✓ Toxicity reduction
  - ✓ Solid waste reduction
  - ✓ Cost reduction
- Scenario：
  - ✓ Product life：10 years
  - ✓ Operating hour：1200 hr/year
  - ✓ Packaging material：2kg carton
  - ✓ Cooling agent use：250g
  - ✓ Plastic material：5.5 kg
  - ✓ EER：4.2 Capacity：5.0KW

Source: Yao-Tien Chang, Environment and Development Foundation, Chinese taipei, Criteria Development and Analysis of Environmental Benefit of the Green Mark Program, GEN AGM, Beijing, China, 2014.09.26

Environmental Benefit of Green Mark Program (Chinese Taipei)

- **Analysis of Environmental Benefit (Version I)**

Case Study: Air Conditioner

Environmental Benefit

① Energy Saving：6540 KWhr

② Material saving：1.6 kg paper

③ CO_2 reduction：4010.83 kg

④ Air pollution reduction ：250g ODC

⑤ Toxicity reduction：22.55g

⑥ Solid waste reduction：5.5kg

⑦ Cost reduction：21059 NTD

Source: Yao-Tien Chang, Environment and Development Foundation, Chinese taipei, Criteria Development and Analysis of Environmental Benefit of the Green Mark Program, GEN AGM, Beijing, China, 2014.09.26

Evaluation of Environmental Impact (using LCA/ LCC): Thailand

Thai Government Green Procurement Promotion Plan (GPP) 2008-2011

1.External Cost

- **Occurs when producing or consuming goods or services**
- **Impose cost upon consumers or the public**
- **Such as pollution, health related problems**

2. Greenhouse Gas Emission Reduction (CO_2e)

Source: Thumrongrat (RUT) Mungcharoen, Life Cycle Costing (LCC) and Benefit to Sustainable Public Procurement

Evaluation of Environmental Impact (using LCA/ LCC): Thailand

Scope of Study: 12 selected products

Name of Products	External Cost	
	baht / product unit	USD / product unit
1. Printer cartridges (box)	127.77	3.94
2. Paper (500 sheets)	45.88	1.42
3. Document folder (piece)	1.87	0.06
4. Envelope (piece)	1.09	0.03
5. Document box (box)	23.92	0.74
6. Correction pen (piece)		
❑ liquid	0.23	0.0071
❑ pen	0.08	0.0025
7. Fluorescence (piece)		
❑ normal	3.12	0.0967
❑ Compact	720.08	22.23
8. Copy machine (set)	160,789.96	4,964.19
9. Toilet paper (roll)	2.79	0.0865
10. Printer (piece)	1,400.04	43.22
11. Metal furniture (piece)	452.12	13.96
12. Paint (box)	2,465.50	76.12

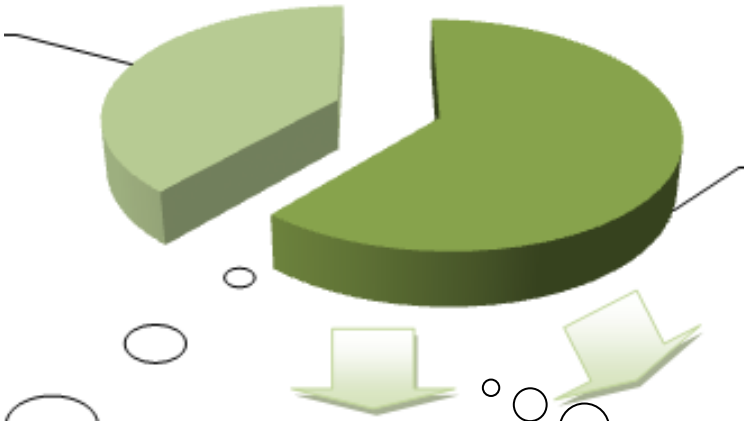
Source: Thumrongrat (RUT) Mungcharoen, Life Cycle Costing (LCC) and Benefit to Sustainable Public Procurement

Evaluation of Environmental Impact (using LCA/ LCC): Thailand

Summary: Environmental Benefits

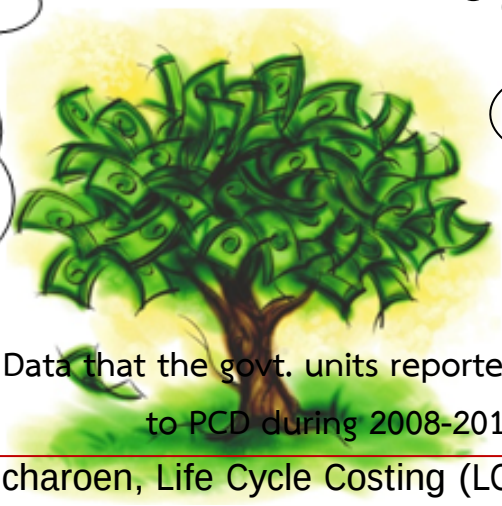
Total budget the govt. spent on 12 selected products:
929.25 million baht (28.69 million USD)

Budget on typical products: 359.23 million baht (39%) (11.09 million USD)



Budget on green products: 570.02 million baht (61%) (17.6 million USD)

Total GHG reduction: 25,685 ton CO2e



Total external cost savings: 223.51 million baht (6.9 million USD)

External cost (baht/unit) x Units that govt. bought (unit)

Remarks: Data that the govt. units reported to PCD during 2008-2011

Source: Thumrongrat (RUT) Mungcharoen, Life Cycle Costing (LCC) and Benefit to Sustainable Public Procurement

Outline

- Unsustainable World
- Sustainable Consumption and Production (SCP)
- Green Productivity (GP)
- Environmental Labels (EL)
- Sustainable Public Procurement (SPP) / Green Public Procurement (GPP)
- **Global Trend of Green Market**

Global Trend of Green Market

The study of Organisation for Economic Co-operation and Development (OECD)

Value of eco-product in global market

3 hundred billion USD in 2000

↓

5.5 hundred billion USD in 2010

↓

3.8 trillion USD in 2020

The study of Europe Retail and Shopping Center: Value of eco-product in *EU market*

10.3 hundred billion EUR in 2000

↓

56 hundred billion EUR in 2009

↓

114 hundred billion EUR in 2015

Source: Thumrongrat (RUT) Mungcharoen Seminar on "Leadership in Eco Industrial Town Development: Leadership on Eco Industry" 29th October 2013, Bitec Bang Na

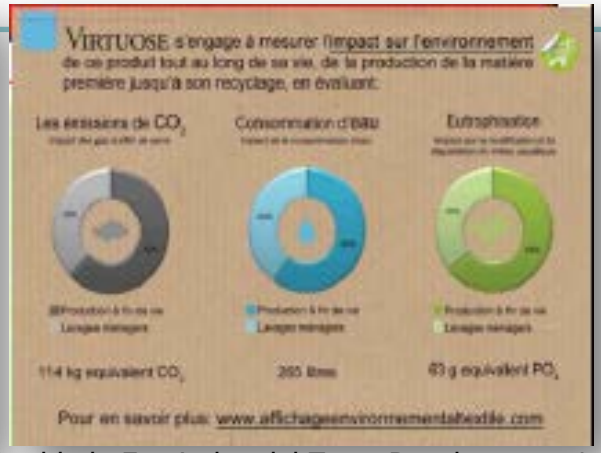
Global Trend of Green Market

The study of World Business Council for Sustainable Development:

WBCSD

There are only Eco-Products in the Market by 2050.

- **"Grenelle Law 2" , Frence (2013) : Product with multi-criteria across LCA of product (multi-criteria; carbon footprint + at least 1 other)**
- **9 Apr. 2013 EU announced "Single market for green product" using Environmental footprint**



Source: Thumrongrat (RUT) Mungcharoen Seminar on "Leadership in Eco Industrial Town Development: Leadership on Eco Industry" 29th October 2013, Bitec Bang Na

Conclusions

- World is unsustainable
- Options → SCP and GP
  - Eco-Label (Environmental Label)
  - Sustainable Procurement
- Future Trend

Be The Change . . .

Development Alternatives

Source: Ashok Khosla, The Post-RIO Future We Want In Asia: The SCP Engine, November 2012, Bangkok

. . . You Want to See

Development Alternatives

Source: Ashok Khosla, The Post-RIO Future We Want In Asia: The SCP Engine, November 2012, Bangkok

Otherwise, We Will Need 2 Additional Worlds by 2030

Development Alternatives

Source: Ashok Khosla, The Post-RIO Future We Want In Asia: The SCP Engine, November 2012, Bangkok

Communication & Outreach

- Development of communication strategy
- **Quarterly Newsletter**
- **NEW Website** www.unep.org/10YFP
- **Global SCP Clearinghouse launched**
  - So far has 1,100 members, 300 initiatives, 100 experts from 500 institutions
  - in > 100 countries
- Global and regional networks of national focal points

Source: UNEP, The 10-Year Framework of Programmes on Sustainable Consumption & Production – Driving Sustainability, SCP Week, 30 October 2013, Seoul, Korea

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