Promoting Benchmarking on GP-Inclusive Development and Green Leadership

Green Productivity for Green, Inclusive Development: A Commitment Today for a Greener Tomorrow

APO 3rd World Conference on Green Productivity
APO Center of Excellence on Green Productivity: Milestone of APO movement

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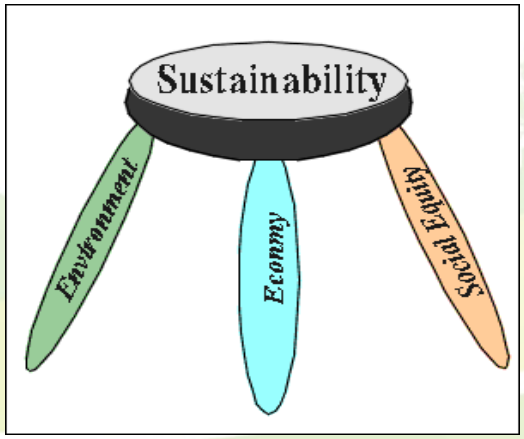
Sustainable Development and Corporate Sustainability

Sustainable Development

- "Meeting the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 2007)
- Emphasize on the equity of intra-generation and inter-generation.
- Three components: Economic growth, environmental protection and social equity.

3-Legged Sustainability Stool



Economy - Profits
Growth Jobs, Taxes
Products, Services

Environment - Planet
Eco-efficiencies
Eco-effectiveness

Equity - People
Employees
Community / Culture
World

Quality of Life / Genuine Wealth / Genuine Progress

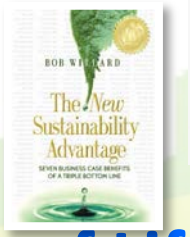
3-Legged Sustainability Stool

Sustainability

Economic Leg
Good Jobs
Fair wages
Security
Infrastructure
Fair Trade

Environmental Leg
No Pollution & Waste
Renewable Energy
Conservation
Restoration

Social Leg
Working conditions
Health services
Education services
Community & Culture
Social justice



Bob Willard (2012)

Quality of Life / Genuine Wealth / Genuine Progress

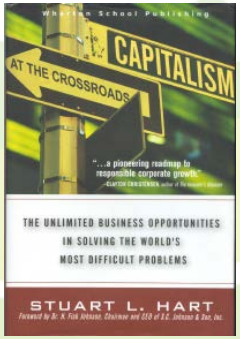
Corporate Sustainability*

*corporate sustainable development, sustainable enterprises or sustainable business

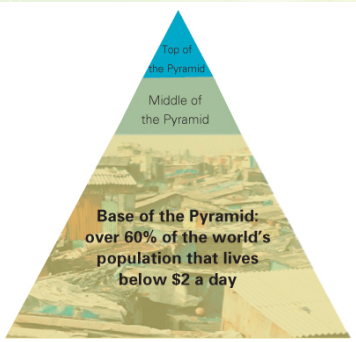
Sustainable development?... **the development that meets the needs of the present without compromising the ability of future generations to meet their own needs... (United Nations)**

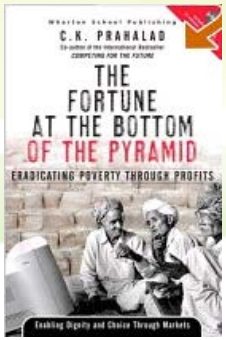
Corporate sustainability encompasses strategies and practices that aim to meet the needs of stakeholders today while seeking to protect, support and enhance the human and natural resources that will be needed in the future. (www.deh.gov.au)

A Sustainable Enterprise creates economic, social and environmental values in the short, medium and long term, contributing to the increase of the well-being and the real progress of the present and future generations, within it's immediate environment and for the planet in general. (www.istas.net)



Capitalism at the Crossroads: The Unlimited Business Opportunities in Solving the World's Most Difficult Problems





The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits

Corporate Sustainability 3-Legged Stool

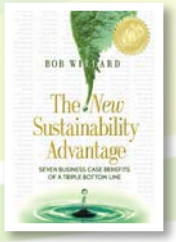
Triple Bottom Line (TBL) = 3Es = 3Ps
= Sustainability = Sustainable Development (SD)
= Corporate Social Responsibility (CSR)
= Corporate Responsibility (CR) = Green
= Environmental, Social, Governance (ESG)

Economy - Profits
Growth
Jobs, Taxes
Products
Services

Environment - Planet
Eco-efficiencies
Eco-effectiveness

Equity - People
Employees
Community / Culture
World

Bob Willard (2012)

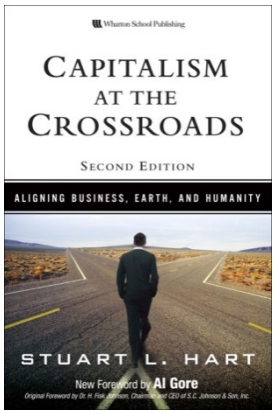


The Evolution of Thought on Corporate Sustainability

1945-1960s
Pollution
Denial
"Smell of money"
(oblivious)

Obligation

1970s-1980s
End-of-pipe regulation
"Pay to reduce negative impact"
(trade-off)



Opportunity

2000-Present
Beyond Greening
- Clean technology
- Base of the pyramid

"Eco-effectiveness"
(positive force)

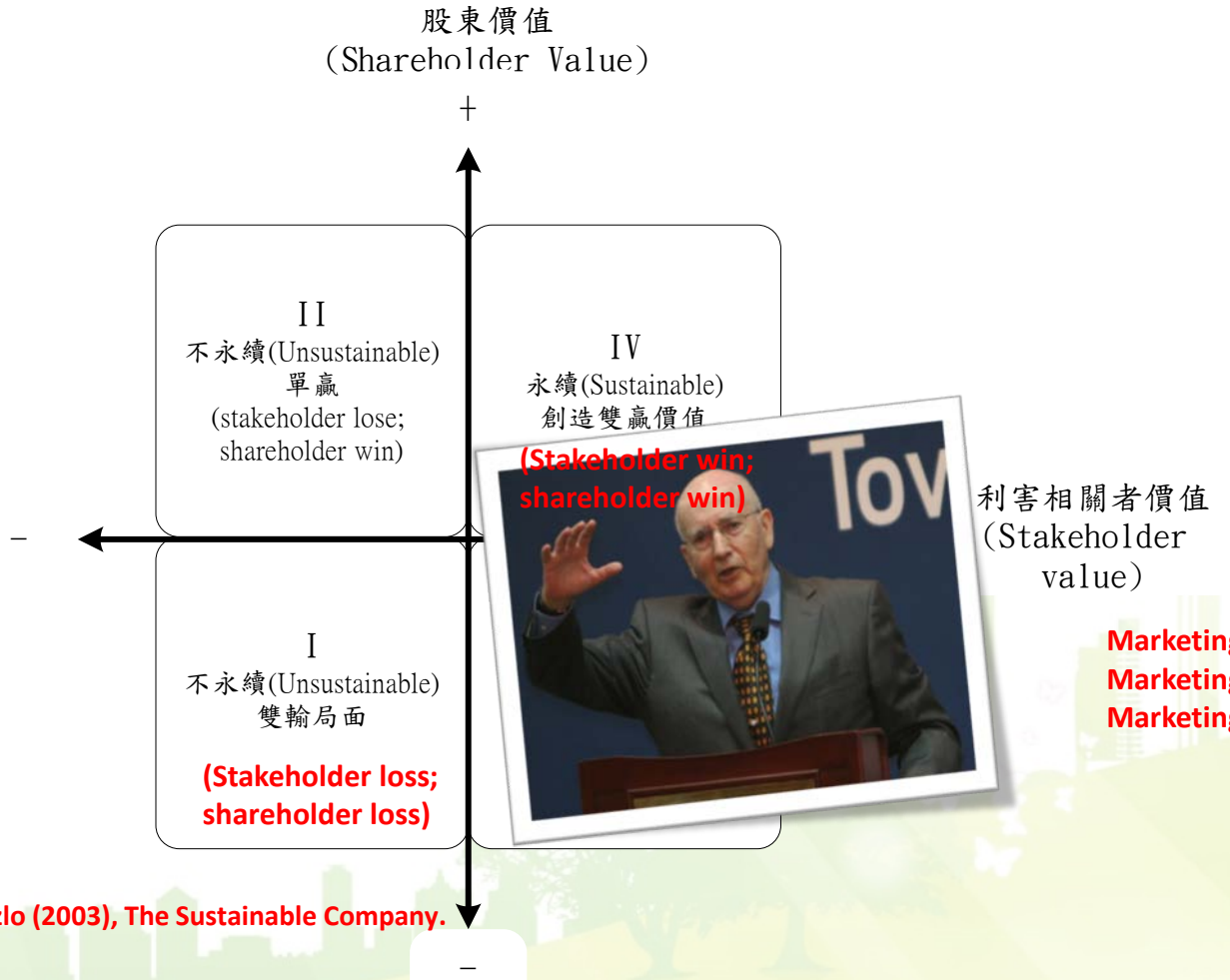
Reorientation

Mid 1980s-2000
Greening
- Pollution prevention
- Product stewardship

"Eco-efficiency"
(win-win)

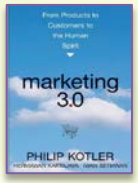
Source: Adapted from Capitalism at the Crossroads (Hart, 2010, p. 33)

Shareholder Value vs. Stakeholder Value



Source: Laszlo (2003), The Sustainable Company.

Marketing 1.0: Product-centric
Marketing 2.0: Customer-oriented
Marketing 3.0: Value-driven



"Our thinking has shifted from maximizing *shareholder value* to maximizing *stakeholder value*" (Kotler, 2010).

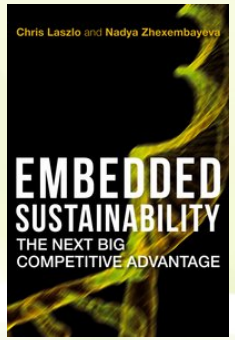
Bolt-On vs. Embedded Sustainability

"Embedded Sustainability is the incorporation of environmental, health, and social value into the core business with no trade-off in price or quality – in other words, with no social or green premium."

"Many companies "bolt-on" sustainability like an afterthought to their core strategies, despite their best intentions. They trumpet green initiatives and social philanthropy that lie at the margins of the business, with symbolic wins that inadvertently highlight the unsustainability of the rest of their activities."

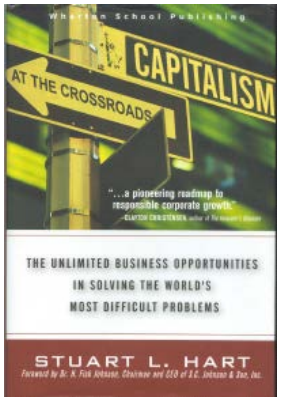
Bolt-On vs. Embedded Sustainability: Key Dimensions

	Bolt-On Sustainability	Embedded Sustainability
goal	Pursue shareholder value	Pursue sustainable value
scope	Add symbolic wins at the margins	Transform core business activities
customer	Offer 'green' and 'socially responsible' products at premium prices or with diminished quality	Offer 'smarter' solutions with no trade-off in quality and no social or green premium
value chain	Manage company's own activities	Manage across the product or service life cycle value chain
organization	Create a 'scapegoat' department of sustainability	Make sustainability everyone's job



Chris Laszlo and Nadya Zhexembayeva (2011)

The Fortune at the Bottom of the Pyramid



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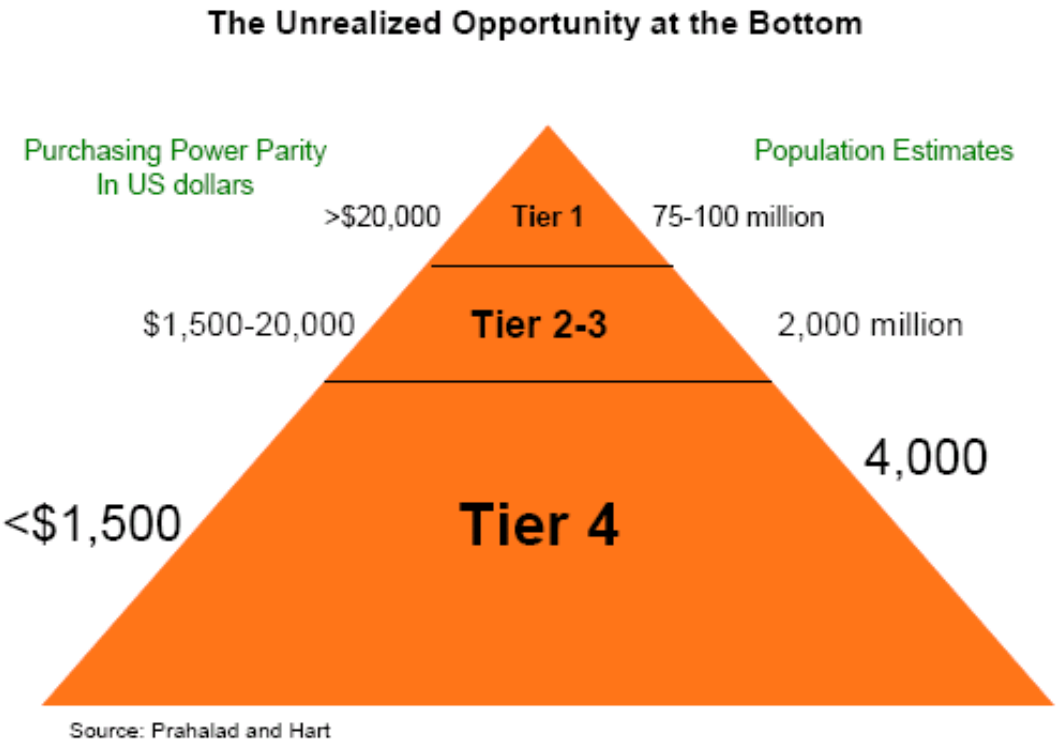
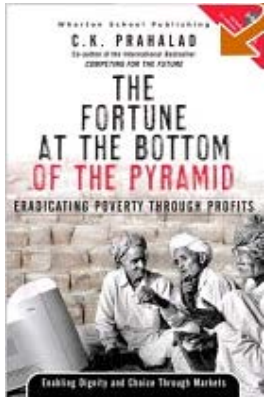
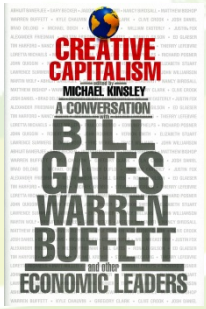




The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through profits

B to 4B



Creative Capitalism

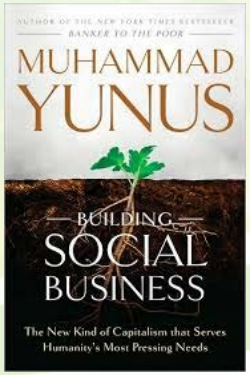
2006 Peace Prize Laureate

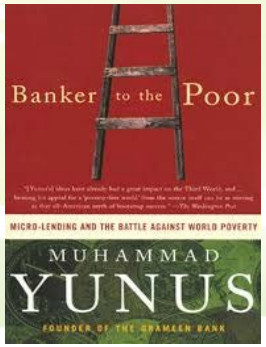
Microloan, Microfinance or Microcredit

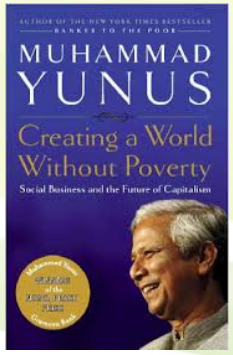
"I'm encouraging young people to become social business entrepreneurs and contribute to the world, rather than just making money. Making money is no fun. Contributing to and changing the world is a lot more fun."

Social Business

Grameen family of organizations







Procter & Gamble's China BOP Project

JANUARY 6, 2011, 5:00 AM

Type Size

Can P&G make money in places where people earn $2 a day?

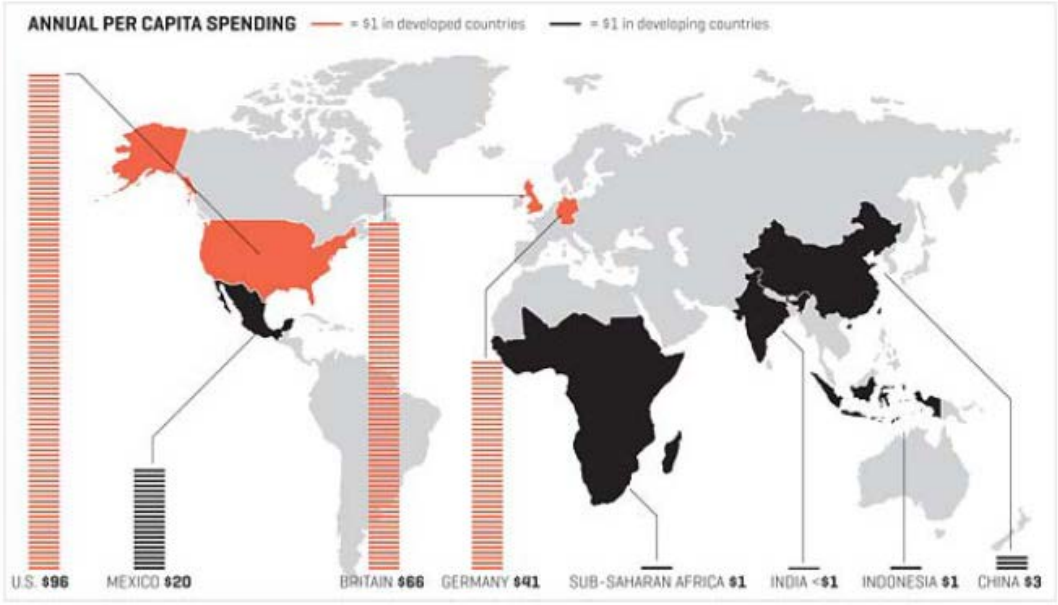
As Western companies duke it out for a piece of the developing-market pie, Procter & Gamble is going deeper -- courting not just the newly rich but also the very poor. The company's vaunted R&D operation is turning up surprises.

*By **Jennifer Reingold**, senior editor*

We are a long, long way from Cincinnati. Getting here required a 15-hour flight to Beijing, followed by a nearly three-hour flight to Lanzhou, an industrial city on the Yellow River in China's midsection, and, finally, a bumpy, two-hour drive deep into treeless hills the color of dried clay. Our destination, in a pinprick of a town called Shahe, is a small cinder-block house framed by

PHOTO: BENJAMIN LOWY

P&G researcher Melisa Liu (left) is shown around a farm near Lanzhou by Gu Wen Juan. Liu is part of the company's "$2 a day" project, which focuses on consumers with that amount of income.

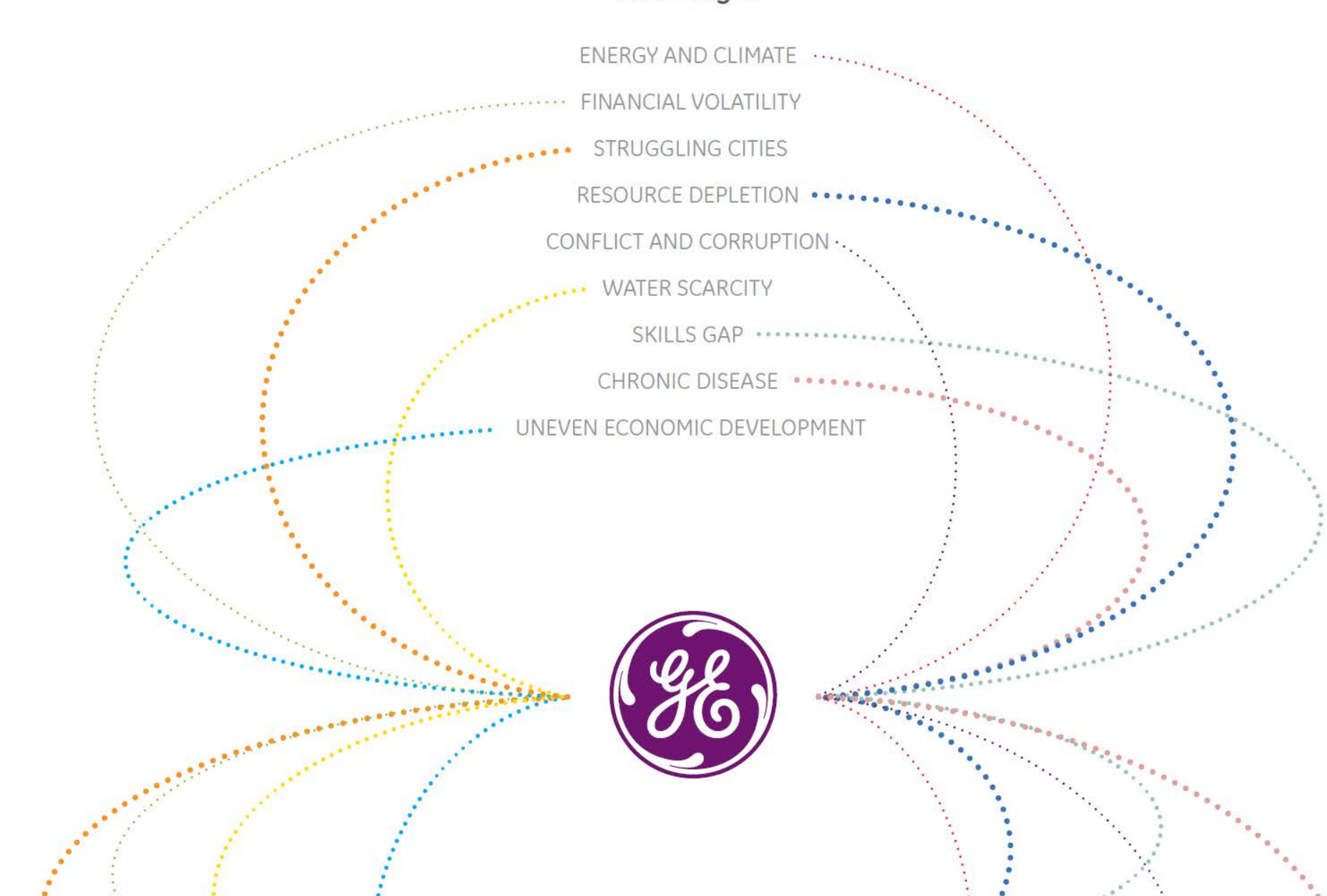


Consumer disparities: A sampling of markets shows big differences in spending on P&G products.

COURTESY: P&G

James Kaw, Director of P&G BJIC; Maurizio Marchesini, Manager of P&G Asia R&D; Bruce Brown,P&G's CTO; and CEO McDonald (from left) at the opening of the company's Beijing Innovation Center in August

Combining Core Competency with SD Challenges



GE's sustainable innovation project

In May 2006, GE decided to invest 3 billion USD to develop 100 of "super cheap", high quality healthcare and medical devices within 6 years. Two of them have been developed, they are potable Electrocardiography (MAC400) and potable ultrasonic, with price of $1000 and 15,000, respectively.

Reverse Innovation in Practice

1 ORIGINAL PRODUCT

In the 1990s GE served the Chinese ultrasound market with machines developed in the U.S. and Japan.

CONVENTIONAL ULTRASOUND
2002 PRICE
$100K AND UP

TYPICAL CUSTOMERS
Sophisticated hospital imaging centers

TYPICAL USES
- Cardiology (such as measuring the size of passages or blood flow in the heart)
- Obstetrics (monitoring fetal health)
- General radiology (assessing prostate health, for example)

But the expensive, bulky devices sold poorly in China.

2 THE EMERGING MARKET DISRUPTION

In 2002 a local team in China leveraged GE's global resources to develop a cheap, portable machine using a laptop computer enhanced with a probe and sophisticated software.

PORTABLE ULTRASOUND
2002 PRICE
$30K–$40K

TYPICAL CUSTOMERS
- China: rural clinics
- U.S.: ambulance squads and emergency rooms

TYPICAL USES
- China: spotting enlarged livers and gallbladder stones
- U.S.: in emergency rooms to identify ectopic pregnancies; at accident sites to check for fluid around the heart; in operating rooms to place catheters for anesthesia

2007 PRICE
$15K

In 2007 the team launched a dramatically cheaper model. Sales in China took off.

3 THE NEW GLOBAL MARKET

PORTABLE ULTRASOUND GLOBAL REVENUES

$4M
2002

2008
$278M

PORTABLE ULTRASOUND
2009 PRICE
$15K–$100K

CONVENTIONAL ULTRASOUND
2009 PRICE
$100K–$350K

Thanks to technology advances, higher-priced PC-based models can now perform radiology and obstetrics functions that once required a conventional machine.

The new Vscan from GE Healthcare puts ultrasound into the palm of a doctor's hand.

From GP to GP 2.0

Green Productivity (GP)-Background

Inspired by the developments during the Earth Summit in Rio de Janeiro and Agenda 21, the APO developed the concept of Green Productivity (GP) in 1994 as a strategy for enhancing productivity and environmental performance for overall socioeconomic development.

During the APO World Conference on GP in Manila in 1996, it was declared that, "Environmental protection should be promoted without sacrificing productivity." The GP concept thus allows both large and small companies to improve their environmental performance even though many expressed initial concerns about productivity and profitability.

GP 1.0: Mainly for creating a "win-win" situation-economic growth (profitability) and environmental Protection.

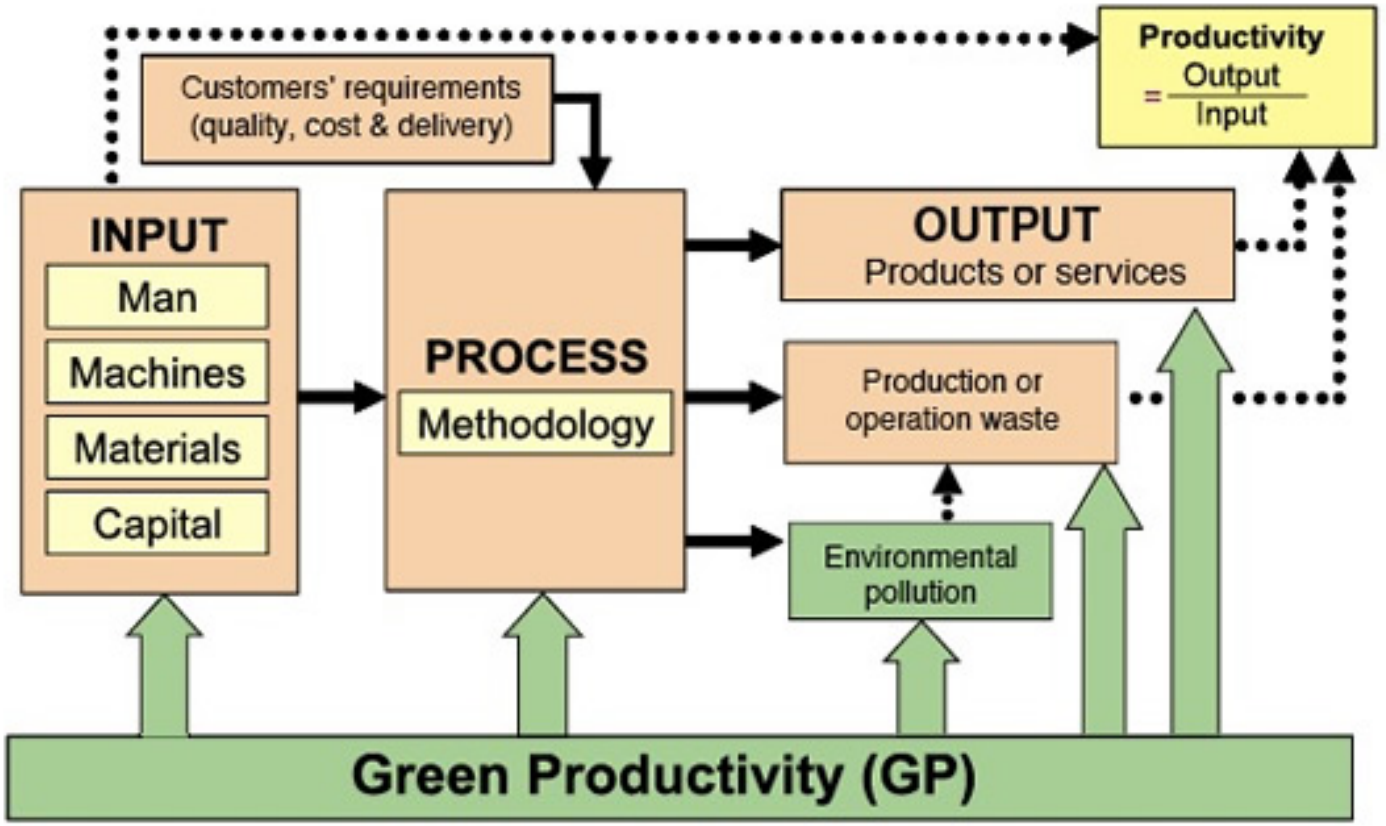
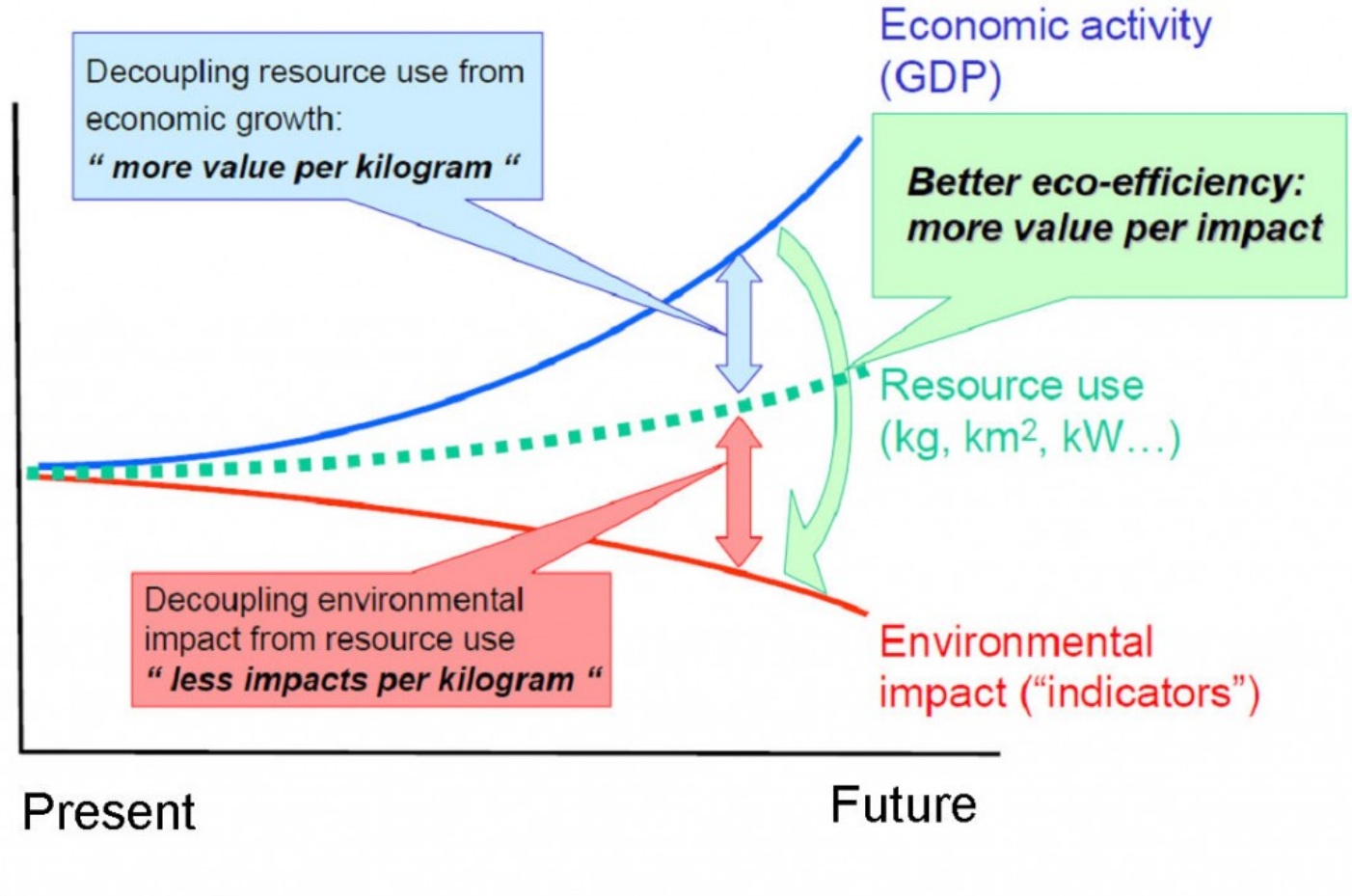


Figure 1. GP addresses all elements of a business system and helps improve productivity.
Source: Teian Consulting International, Singapore.

GP 1.0 is very similar to Eco-efficiency (Do more with less!)



http://www.tosca-life.info/getting-started-guides/eco-efficiency-2/definitions-of-eco-efficiency/

Green Productivity (GP)-Definition (since ~2002)

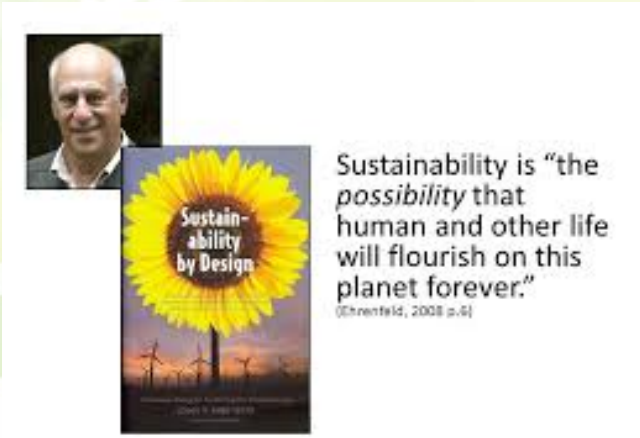
Green Productivity (GP) is "a strategy for simultaneously enhancing productivity and environmental performance for overall socio-economic development". Its aim is well-rounded socio-economic development that leads to sustained improvement in the quality of human life. It is the combined application of appropriate productivity and environmental management tools, techniques and technologies that reduce the environmental impact of an organization's activities, products and services while enhancing profitability and competitive advantage.

GP 2.0: should focus beyond "going green" and more on a sustainable society!

What should the GP 2.0 look like?

New generation of GP (GP 2.0) should follow the practices of contemporary corporate sustainability with emphasizing on promoting green innovation for creating corporate green and sustainable competitiveness!

John R. Ehrenfeld: "Sustainability is the possibility that human and other forms of life will flourish on the Earth forever."



Sustainable Innovation and Social Contribution

Proposed COE GP Excellence Awards Framework

Introduction

- Asia Productivity Organization (APO) has long been implementing various GP programs and initiatives among member countries for promoting GP best practices.
- In light of the importance and benefits of implementing GP for enterprises, COE GP, after it's inception, has been working on developing a GP award framework for recognizing and promoting best practices and elevate public awareness on green productivity among APO member countries.
- Currently, there is no common framework for the GP Awards;
- This effort has been approved by APO.

Expert Panel Meeting on Oct. 1-3, 2014

- **APO convened an expert panel meeting to bring together award administrators/experts from both APO and non-APO countries to discuss a suitable GP award framework for APO member countries.**
- **Experts shared their experiences on related award schemes, and practices**
- **Commented and discussed on the draft award framework**
- **Help in finalizing a workable framework for the GP Excellence awards (in progress)**

Participants of the Expert Panel Meeting

- **Prof. Anthony CHIU, Ph.D. (De La Salle University, Philippines)**
- **Dr. SONG Bin (Singapore Institute of Manufacturing Technology (SIMTech), Singapore)**
- **Ms. Ewa BLOCH (UK National Contact Point on H2020, Innovate UK Board)***
- **Prof. Allen H. HU, Ph.D. (National Taipei University of Technology (Taipei Tech), R.O.C.)****
- **Prof. Sadhan K. GHOSH, Ph.D. (Jadavpur University, India)**
- **Dr. Keijiro MATSUI (National Institute of Advanced Industrial Science and Technology (AIST), Japan)**
- **Mr. Sung-Woo SEOK (Korea Environmental industry and Technology Institute (KEITI), R.O.K.)**

*invited from EU

**Chief Expert

Proposed Award Framework-
Selection Guidelines

Qualification of Applicants

- **The Awards are aimed to elevate qualified national programmes related to sustainability development. Any enterprise interested in this award shall meet the following qualifications or prerequisites:**
- **Has long been supporting green and sustainable activities that has achieved remarkable results;**
- **Has been recognized by green and sustainable related awards in national level;**
- **Without any serious wrongdoings or penalty which caused significant fine in recent 3 years.**

Proposed Award Framework-
Selection Guidelines (cont.)

Nomination:

- This GP Excellence Award are conferred biennial on enterprises.
- The nominations should follow the following stipulations:
  - Only National Productivity Organization (NPOs) of each APO member country can submit nominations for the GP Excellence Awards.
  - Each member country can nominate as many candidates as it wants.
  - Nominations should be forwarded with the nomination form, together with supporting documents, including company profile and detailed description or evidence, supporting materials of the outstanding contributions for the respective indicators listed in the evaluation framework.

Proposed Award Framework- Selection Guidelines (cont.)

Awards

- **Two different awards will be given namely National Green Productivity Best Practice Awards and COE GP Green Productivity Excellence Awards. For the former, they will be given to the best nominee and recommended by the NPO of each member country. And for the latter, they will be selected from all the candidates nominated by the member countries based on the criteria shown in the evaluation framework.**
- **Each member country will only have one awardee for the National Green Productivity Best Practice Awards.**
- **For the COE GP Green Productivity Excellence Awards, they will be given based on 5 performance levels and up to 10 awardees, in which large enterprises and SMEs (small and medium sized enterprises) will be evaluated separately.**

Proposed Award Framework-

Selection Guidelines (cont.)

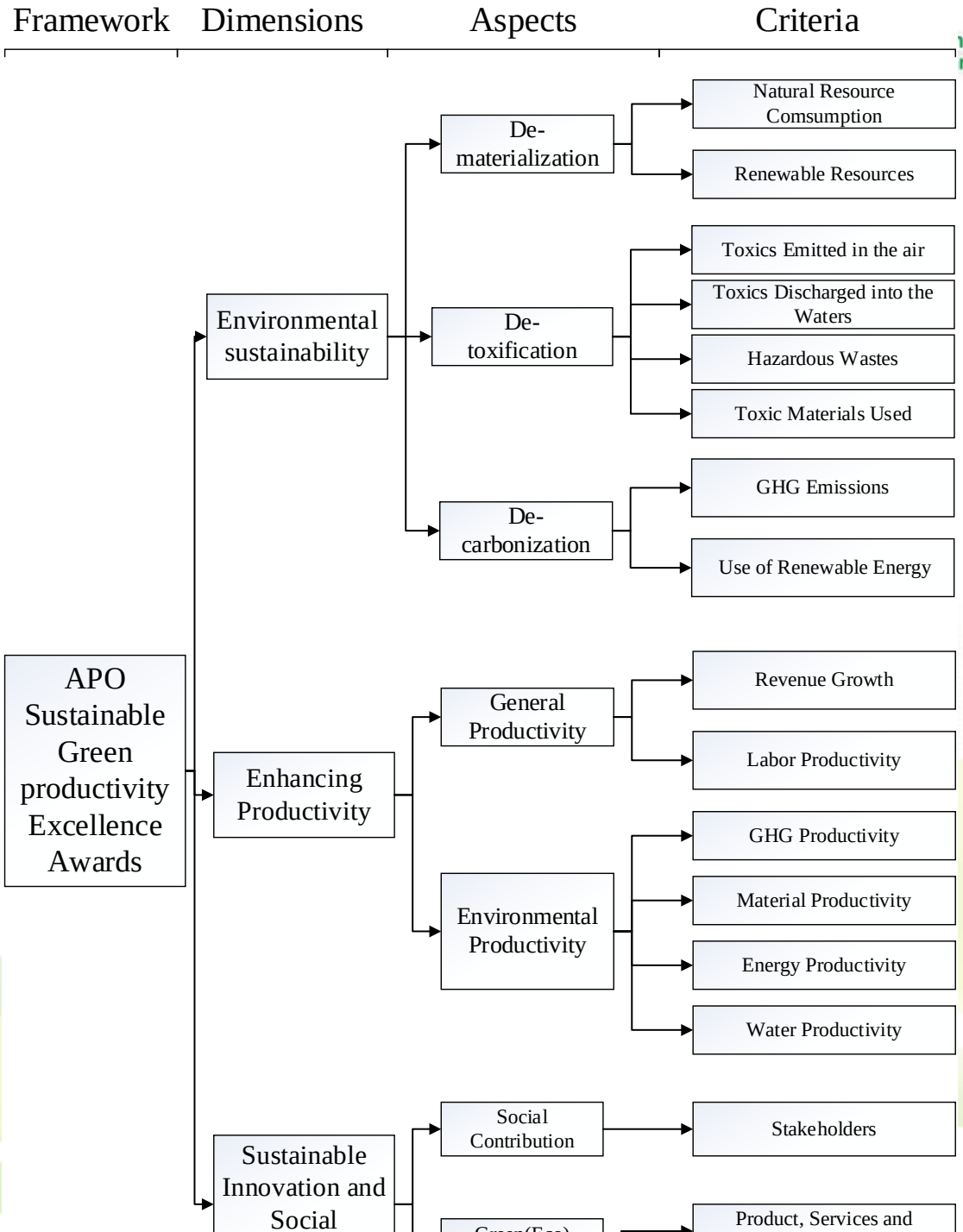
Selection Committee:

- A Selection Committee of the Awards will be a judge panel with 8-10 high-esteemed experts, comprising a chair and 2 to 3 members from the host country, 5 experts from other member countries, and 1 or 2 members from outside the APO countries will be recommended by the COE GP.
- Awardees Selection: A Selection Committee is gearing up for the on line selection.
- Conferment: The proposed first conferment of the COE GP Excellence Awards will be tentative decided in 2016.

Time Schedule:

- COE GP will start the first GP Award program in ROC.
- The proposed award framework will be seeking APO Member Countries Consensus for becoming a APO's regional award.

Framework of the COE GP Green Productivity Excellence Awards



Environmental Sustainability Dimension

Aspects	Criteria	Indicators
De-materialization	**Natural Resource Consumption (including natural materials, energy, and water resources)**	Companies should demonstrate their environmental performance by continuously reducing their consumption of natural materials, non-renewable energy, and water resources. Companies should provide the following data for the most recent three consecutive years: 1. Percentage of natural material consumption (to the total usage); 2. Percentage of non-renewable energy (including fossil-fuel and nuclear power) consumption; 3. Percentage of natural water consumption.
	Renewable Resources (recycled materials, and reclaimed water)	Companies should demonstrate their environmental performance by continuously increasing their utilization of recycled materials, and reclaimed water. Companies should provide following data for the most recent three consecutive years: (Not including renewable energy) 1. Percentage of consumption of recycled materials 2. Percentage of consumption of reclaimed water

Environmental Sustainability Dimension

Aspects	Criteria	Indicators
De-toxification	**Toxics Emitted in the Air**	Companies should control and treat all air toxics produced by their operations to improve the air quality and human health. Companies should provide the following specific data for the most recent three consecutive year: 1. Emissions of air pollutants, including SOx, NOx, VOC, PM_{10}, $PM_{2.5}$ and other toxics regulated by the laws over three consecutive years 2. Organization should report what standards, methodologies, initiatives, and equipment have been used to control air pollutants
	Toxics Discharged into the Waters	Companies should treat and manage all wastewater generated by their operations with emphasis on showing the reduction of discharging toxics into the waters. Corporations should avoid the effluent and spills into natural water bodies and decrease the risk posed to human health. Corporations should provide the following data for the most recent three consecutive years: 1. Total volume of water discharges by destination 2. Treatment method. 3. Initiatives to reuse wastewater

Environmental Sustainability Dimension

Aspects	Criteria	Indicators
De-toxification	**Hazardous Wastes**	Companies should monitor all wastes related to their operations with emphasis on showing the reduction of generation of hazardous wastes. Companies should implement 3R policies to decrease the amount of waste and environmental impact. Companies should provide the following data for the most recent three consecutive year: 1. Total weight of hazardous and non-hazardous wastes over three consecutive years 2. Total weight of waste that are recycled or reused over three consecutive years 3. How waste disposal methods, including recycling, reuse, incineration, deep well injection, landfilling, or on-site storage, are being determined
	Toxic Materials Used	Companies should reduce their usages of toxic materials in their processes and operations. Corporations should provide the following data for the most recent three consecutive year: 1. Total amount of regulated toxics used over three consecutive years 2. Initiatives to reduce the usage of toxic materials.

Environmental Sustainability Dimension

Aspects	Criteria	Indicators
De-carbonization	**GHG Emissions**	Companies should demonstrate their environmental performance by continuously reducing their GHG missions. Companies should provide GHG emission data data for the most recent three consecutive year: 1. The amount of GHG emissions (including scopes 1 and 2; if possible, scope 3 GHG emissions should also be provided) 2. GHG intensity of the company (ton CO_2 eq/revenue) 3. GHGs (such as CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3, or all) included in the calculation 4. Baseline year of the calculation. 5. Carbon footprint of products (if available) 6. Amount of GHG emission reductions achieved in initiatives to reduce emissions 7. Third-party verification or assurance of organizational GHG emissions and carbon footprint of product
	Use of Renewable Energy	Companies should demonstrate their environmental performance by continuously increasing their utilization of renewable energy Companies should provide following data data for the most recent three consecutive year: 1. Type of renewable energy used. 2. Percentage of renewable energy to the total energy consumption

Enhancing Productivity Dimension

Aspects	Criteria	Indicators
General Productivity	**Revenue Growth**	1. Companies should disclose the revenue growth for the most recent three consecutive years
	Labor Productivity	1. Companies should demonstrate a continuously increasing performance in terms of labor productivity. 2. Organizational labor productivity is defined as economic value created every year per labor force. 3. In this framework, annual revenue is used for the economic value, and the unit of labor productivity is thousand dollar revenue/per labor. 4. Companies should provide labor productivity data for the most recent three consecutive years.

Enhancing Productivity Dimension

Aspects	Criteria	Indicators
Environmental Productivity	**GHG Productivity**	1. Companies should demonstrate a continuously increasing performance in terms of GHG productivity. 2. Organizational GHG productivity is defined as economic value created every year per unit of GHG generated. 3. In this framework, annual revenue is used for the economic value, and the unit of GHG productivity is thousand dollar revenue/per ton-CO_2 generated. 4. Companies should provide GHG productivity data for the most recent three years.
	Material Productivity	1. Companies should demonstrate a continuously increasing performance in terms of material productivity. 2. Organizational material productivity is defined as economic value created every year per unit of material consumed. 3. In this framework, annual revenue is used for the economic value, and the unit of material productivity is thousand dollar revenue/per ton or kg material consumed. 4. Companies should provide material productivity data for the most recent three years.

Enhancing Productivity Dimension

Aspects	Criteria	Indicators
Environmental Productivity	**Energy Productivity**	1. Companies should demonstrate a continuously increasing performance in terms of energy productivity. 2. Organizational energy productivity is defined as economic value created every year per unit of energy consumed. 3. In this framework, annual revenue is used for the economic value, and the unit of energy productivity is thousand dollar revenue/per Oil Equivalent (toe or kgoe) consumed. 4. Companies should provide energy productivity data for the most recent three years.
	Water Productivity	1. Companies should demonstrate a continuously increasing performance in terms of water productivity. 2. Organizational water productivity is defined as economic value created every year per unit of water consumed. 3. In this framework, annual revenue is used for the economic value, and the unit of water productivity is thousand dollar revenue/per m^3 water consumed. 4. Companies should provide water productivity data for the most recent three years.

Sustainable Innovation and Social Contribution Dimension

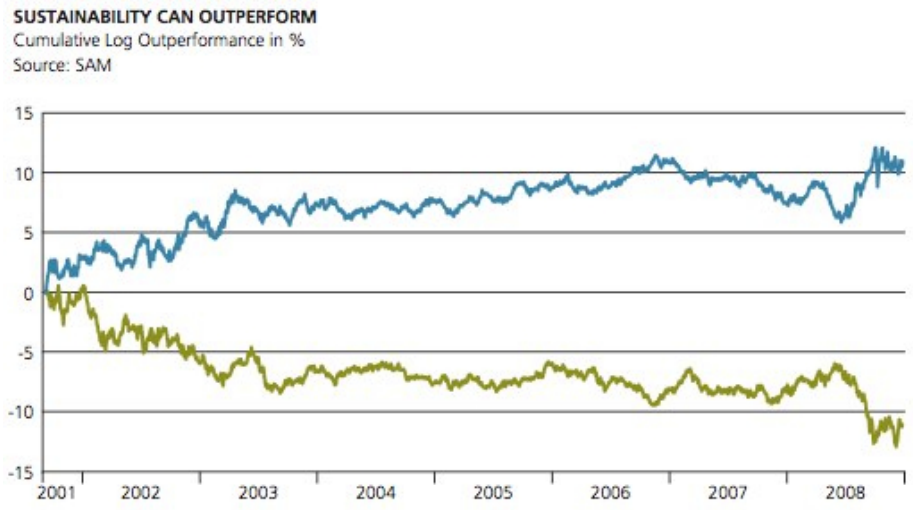
Aspects	Criteria	Indicators
Social Contribution	Stakeholders	1. Companies should provide a description or explanation of their efforts on sustainable innovation and social contribution. The magnitude of positive impact creation on the stakeholders of following issues listed below is the main consideration for judgment. a. Quality of life b. Sustainable society c. Gender equality d. Working environment e. Greening supply chain f. Local community g. Child labor h. Other (Specify) 2. Companies should describe the local challenges, as well as the local issues that have been solved or overcome through their efforts.

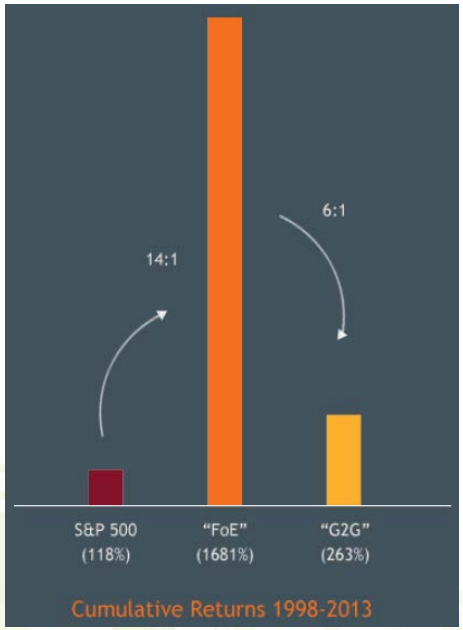
Sustainable Innovation and Social Contribution Dimension

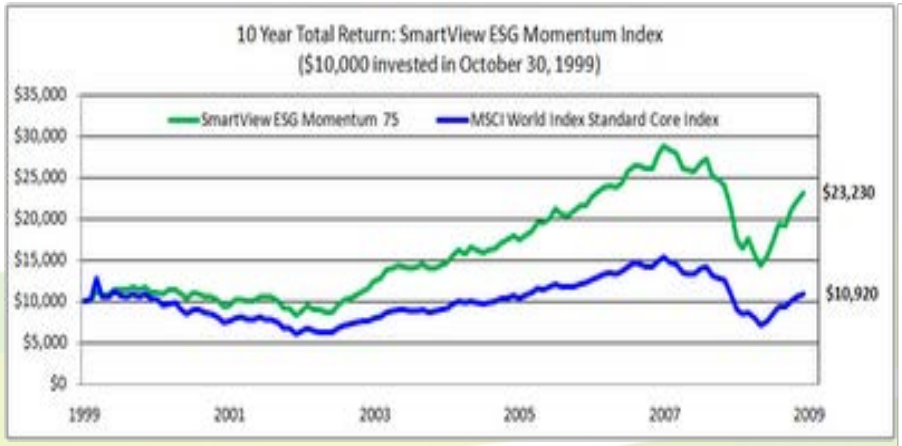
Aspects	Criteria	Indicators
Green (Eco) Innovation and Sustainable Innovation	**Products, Services and Business Models**	1. Companies should describe what and how innovation practices (innovative practices are not limited to products, but may also include services and business models) have been implemented to solve economic, environmental, and social problems. 2. Companies should also describe the value (tangible or intangible) created by their innovative practices.
	Green and Sustainable Related Patents	1. Companies should describe how many patents for green and sustainable innovation have 2. Companies should describe how does patent contribute for society and environment 3. Companies should describe how does corporate create benefit through patents

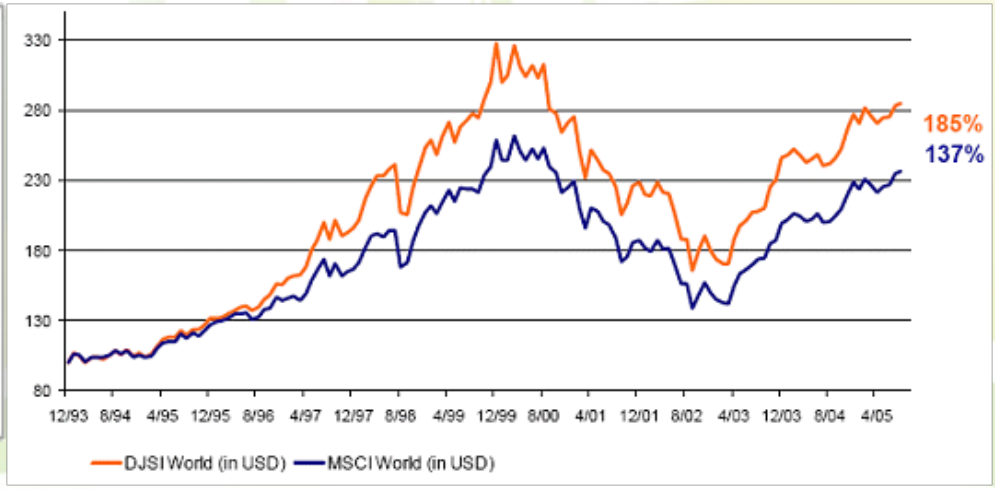
Closing Remarks

Financial Performance of Sustainable Enterprises









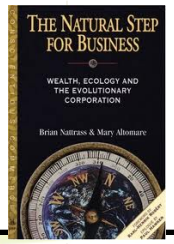
Industry's Sustainability Learning Curve

CSR projects differ along three dimensions:

- **Philanthropy**- Engage in charity, sponsorship and employee volunteering
- **CSR integration-** Conduct existing business operation in a more responsible fashion
- **CSR innovation-** Develop new business models for solving social and environmental problems.

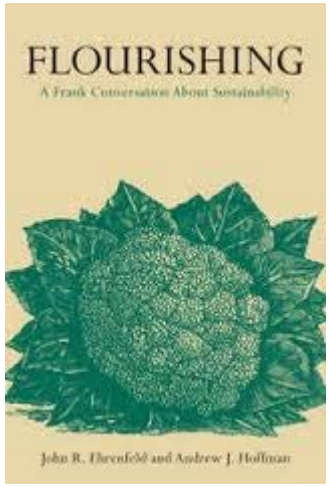
(Halme and Laurila, 2009)

	1st Era COMPLIANCE	2nd Era BEYOND COMPLIANCE	3rd Era ECO-EFFICIENCY	4th Era SUSTAINABLE DEVELOPMENT
				TNS, Design for Sustainability, Biomimicry. Evolutionary Learning
				Expanded CSR, Natural Capitalism
			Integrated Management Systems	
			Environmental Cost Accounting	
			Product Stewardship/DFE/LCA	
		TQEM / Environmental Management Systems		
		Stakeholder Engagement		
	Pollution Prevention/Waste Minimization/Incentives			
	Pollution Control/Compliance			
CORPORATE RESPONSE	**Before 1970s Unprepared**	**1970s Reactive**	**1980s Anticipatory**	**1990s Proactive**	**2000s High Integration**
INDUSTRY GOALS	**None**	**Regulatory Standards**	**Cost Avoidance Impact Reduction** Pre-emption of Regulation Leadership Legitimacy Protection Partnerships Competitive Edge	**Profit Centre Approach** Eco- efficiency Dematerialization Strategic Environmental Management	**Explicit Mainstreaming** of Environmental Goals DFE/LCA Systems Environmental Cost Mgmt. Resource Productivity Products of Service Culture Change

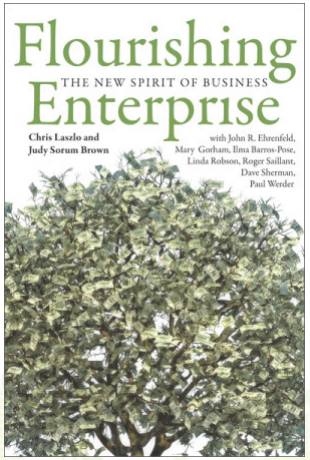


Source: The Natural Step for Business, Brian Nattrass & Mary Altomare

GP 2.0 = Sustainability as Flourishing



Sustainability is "the *possibility* that human and other life will flourish on this planet forever."
(Ehrenfeld, 2008 p.6)



John R. Ehrenfeld: "Sustainability is the possibility that human and other forms of life will flourish on the Earth forever."

Thank you for your attention!

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