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Green Industry

Green Industry Initiative and Promotion of Green Technologies

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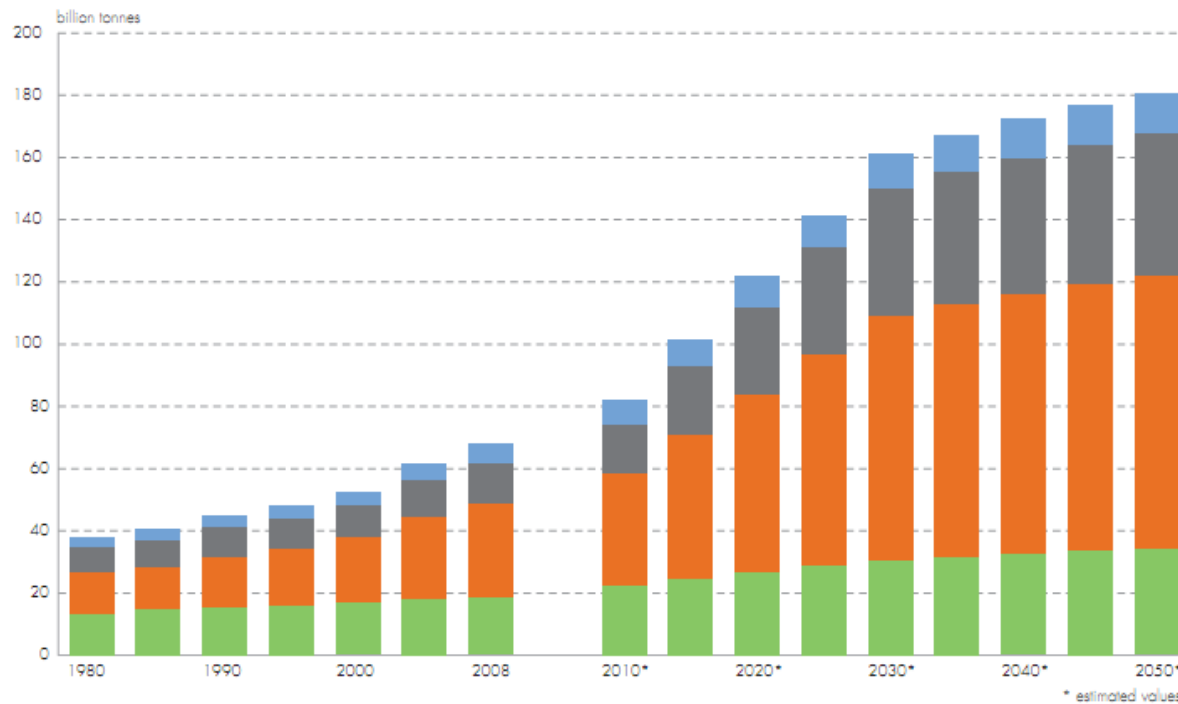
Outline

- Why Green Industry?
- What is Green Industry?
- How does UNIDO promote Green Industry?
- How does Green Industry impact on technology?





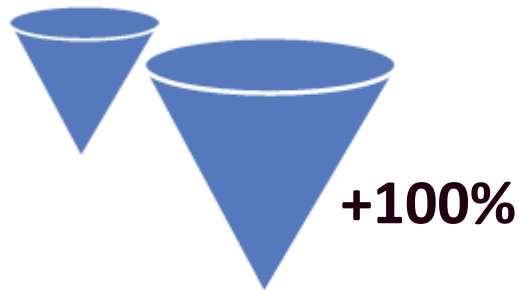
Business as Usual is Not an Option



Global material consumption would nearly triple between 2008 and 2050 to 180 billion ton annually assuming that per capita consumption would globally average current OECD levels from 2030 onward



Business as Usual is Not an Option



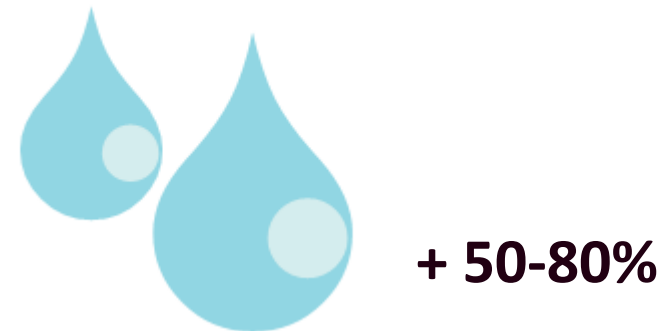
Unused material extraction
from metal mining



CO2 from fossil fuel burning



CO2 from cement production



Water use in industry



McKinsey & Company

McKinsey Global Institute
McKinsey Sustainability & Resource Productivity Practice



November 2011

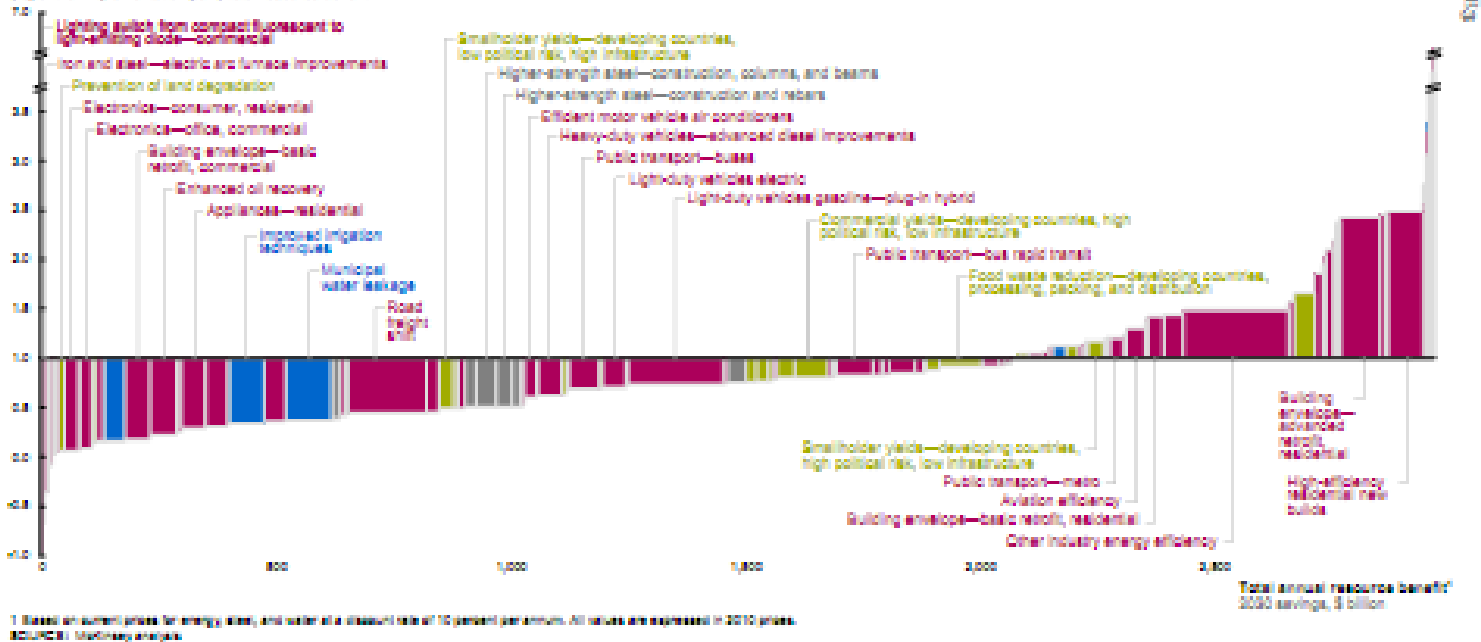
Resource Revolution:
Meeting the world's
energy, materials, food,
and water needs

Business as Usual is Not Necessary

The productivity opportunity totals \$2.9 trillion in 2030 from an investor perspective
Investor perspective, 2030

Cost efficiency of investment

3¢ spent for implementation per \$1 total resource benefit



The economic benefits from resource efficiency for energy, water, land and steel are estimated at 2.9 trillion USD annually by 2030.



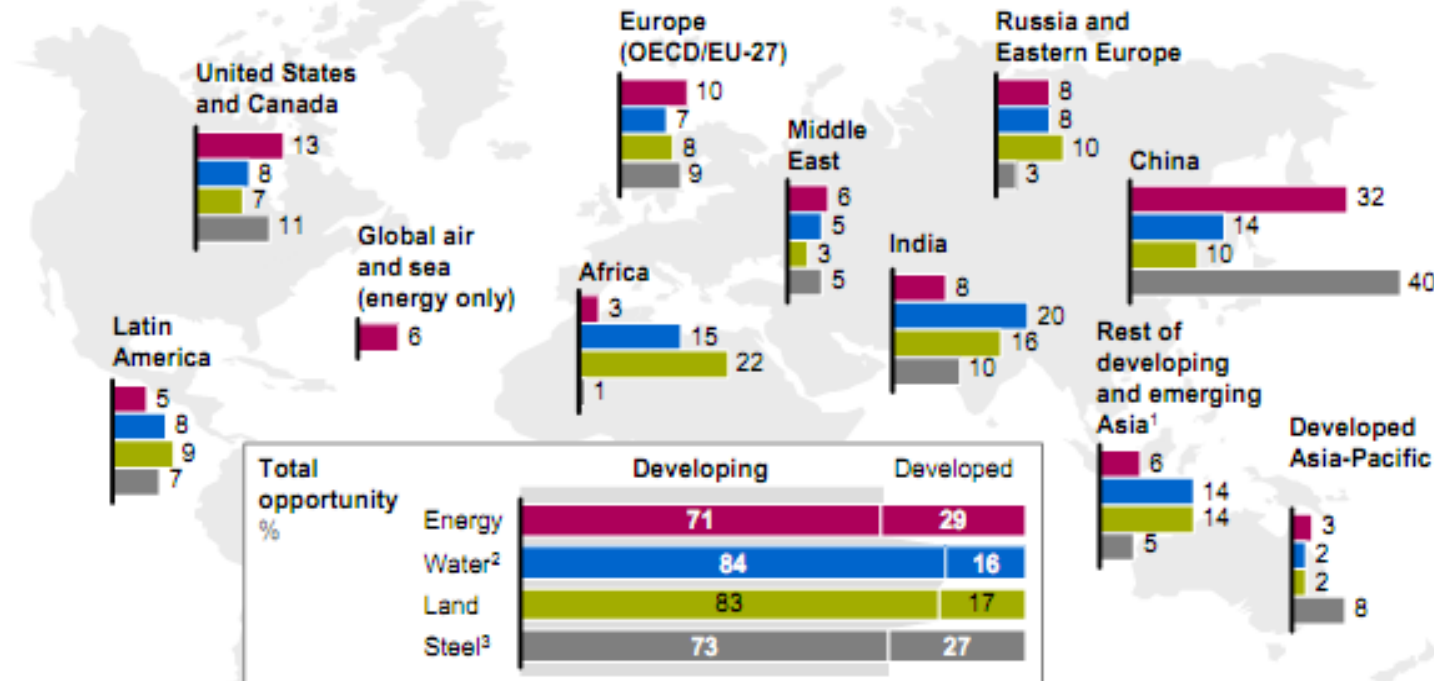
Business as Usual is Not Necessary



Developing countries account for 70 to 85 percent of productivity opportunities

% of total productivity opportunity by resource and region

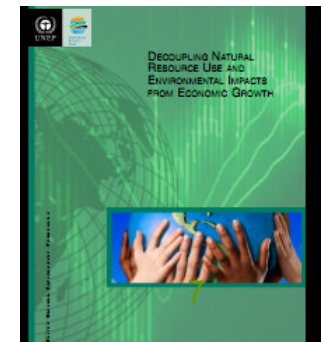
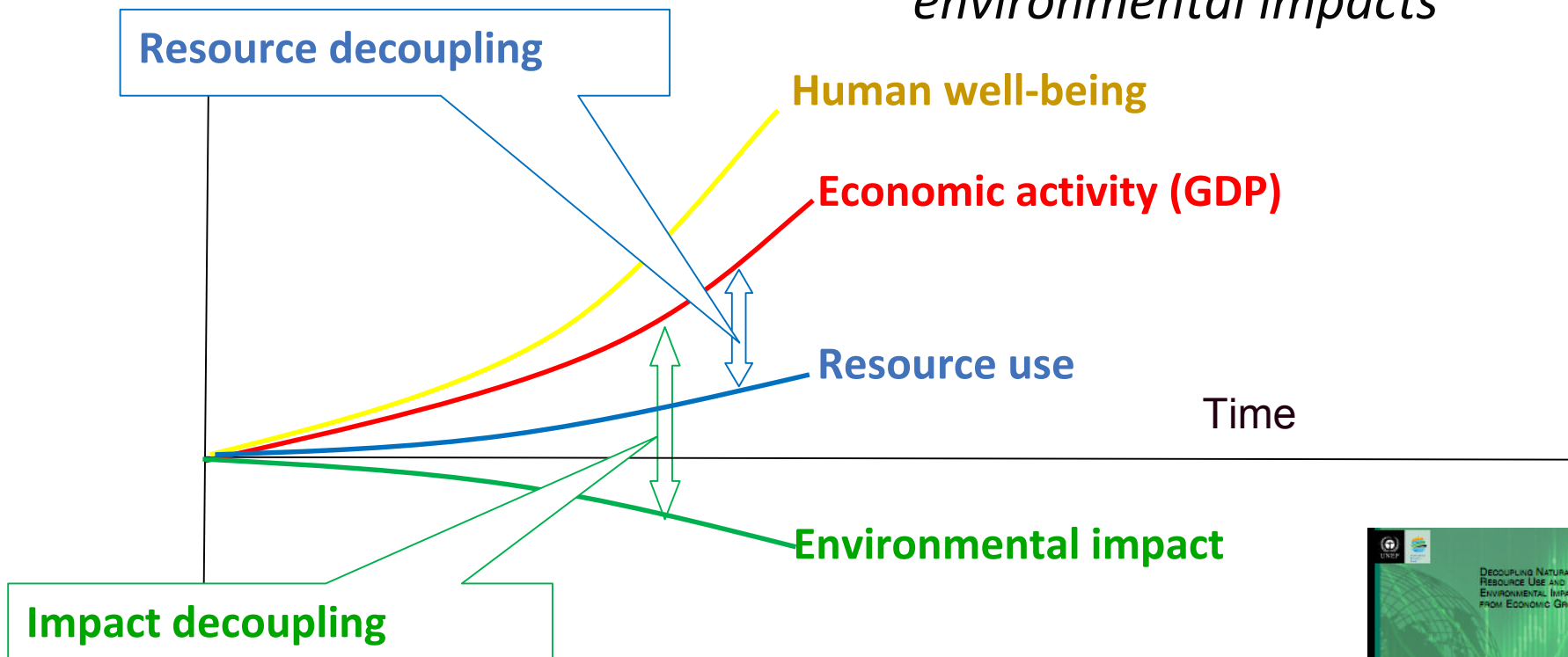
Energy Land
Water Steel





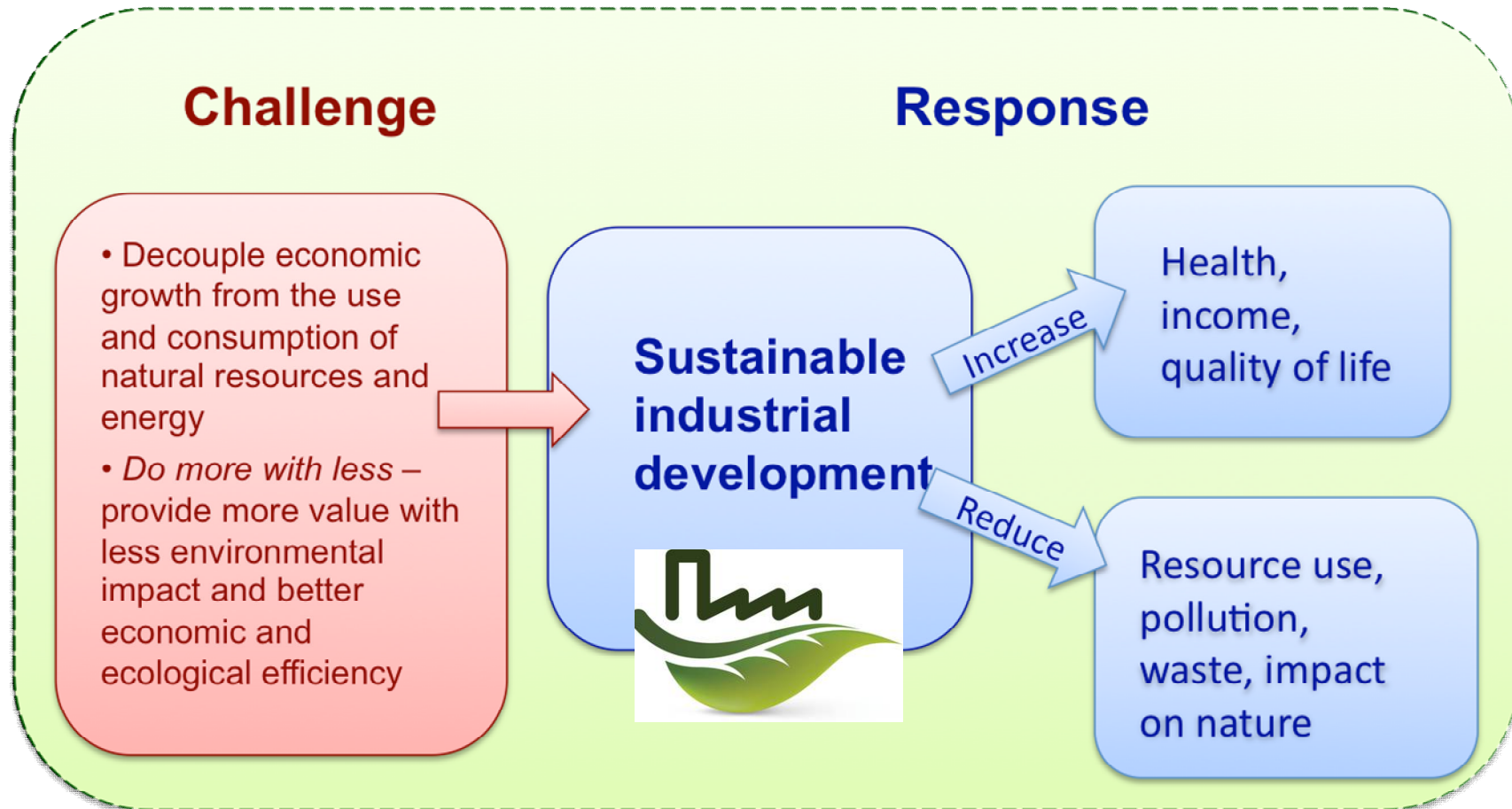
Decoupling

Decoupling economic growth from increased natural resource consumption and aggravated negative environmental impacts





The Challenge





Green Growth and Economy

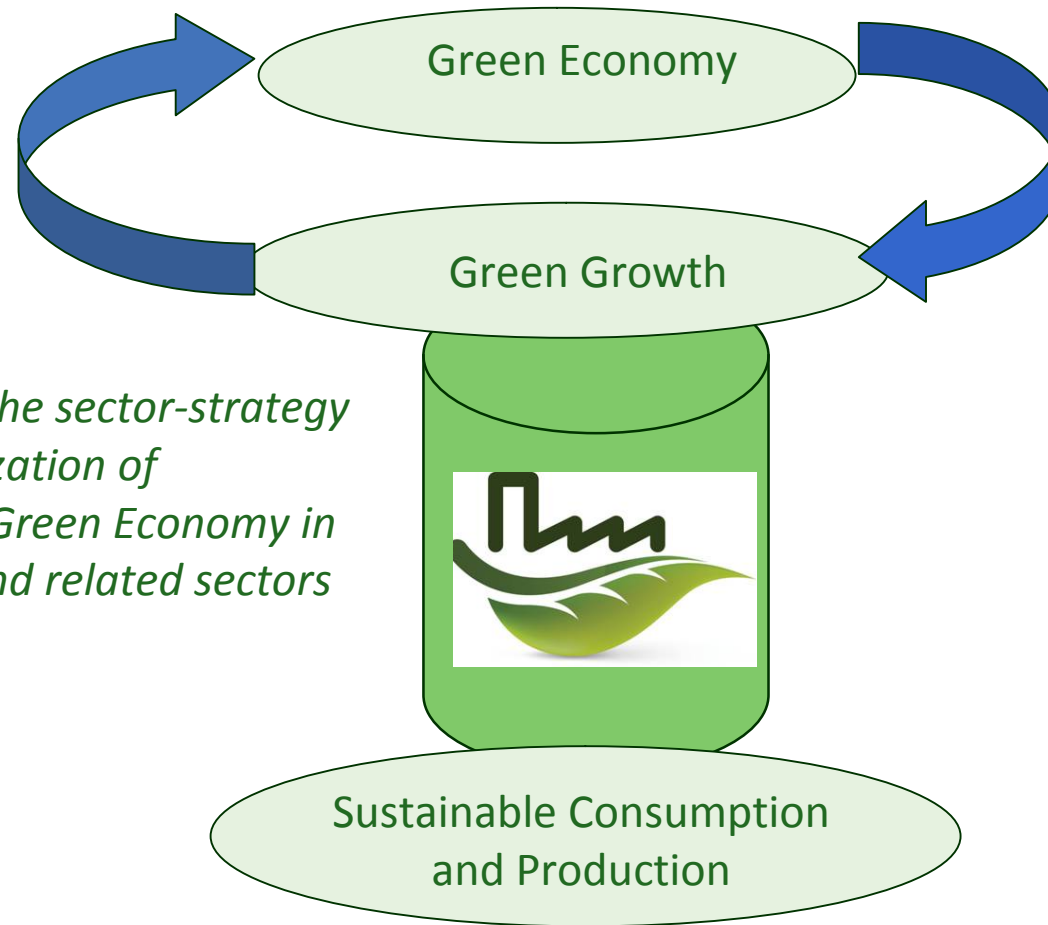


Green Growth and Economy require investment and innovation,
which are driven by business





Green Industry for Green Growth



Macro-level
(policy/strategy)

Micro-level
(operational/
solutions)

*Green Industry is the sector-strategy
for realization of
Green Growth & Green Economy in
manufacturing and related sectors*



Green Industry

- Greening of Industry
 - Continuous improvement of resource productivity and environmental performance of industries in all sectors
 - Cleaner Production
 - Energy Efficiency
 - Chemicals Management
 - Etc.
- (Creating) Green Industries
 - Industrial supply of environmental goods and services
 - Waste management
 - Resource recovery
 - Renewable energy
 - Etc.





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Green Industry

Green Industry = Development Priority

- Triple bottom line development impact
 1. Income and employment creation
 2. Competitive and sustainable business
 3. Innovative and value-adding products
 4. Natural resource security
 5. Mitigation and adaptation to climate change
 6. Environmental management
 7. Industrial and chemical safety

Chairs' Summary, Senior Officers Meeting, TGIC, 15 November 2011



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Green Industry

Green Industry Milestone/1

- Manila Green Industry Declaration
 - Non-binding declaration that maps out Government commitments to low carbon future
 - Endorsed by 21 Asian Countries
 - Afghanistan, Bangladesh, Bhutan, Cambodia, India, Indonesia, Iran, Lao PDR, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Pakistan, Philippines, PR of China, Rep of Korea, Sri Lanka, Thailand, Timor-Este and Vietnam
 - Linked with framework for action
 - National Government leadership
 - Cooperative action with business and R&D sectors, policy integration, communications and capacity building
 - Support from UN agencies – UNIDO, ESCAP, UNEP and ILO
 - Reviewed and commitment renewed in 2011 during Tokyo Green Industry Conference



28 August 2012

Tokyo Green Industry Conference 2011 



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Green Industry

Green Industry Milestone/2

- Green Industry Platform
 - Launched with UNEP during Rio+20 on 16th June 2012 as multi-stakeholder initiative to support the implementation of Green Industry globally
 - Currently supported by 82 organizations, representing government, business and other organizations
 - 11 National governments, e.g. Costa Rica, Jordan, Poland, Sierra Leone, Mexico, Switzerland and Viet Nam
 - 46 Businesses, e.g. Broad, Microsoft, Novozymes, Total, Vodokanal
 - 25 Organizations: EU, GEF, ICC, VDI

28 August 2012

UNIDO Seminar, Tokyo





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Green Industry

Green Industry Platform/1

- A **forum** for mobilizing, mainstreaming and advancing Green Industry around the world
- Provides a framework that brings together governmental, business and civil society leaders to secure concrete commitments and mobilize action in support of the Green Industry agenda
- Encouraging efficient use of energy and raw materials in manufacturing processes and services to create more competitive industrial development while reducing pollution and reliance on the unsustainable use of natural resources



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Green Industry Platform/2

It will *achieve* this through:

- **Road maps** to integrate Green Industry policies and practices in organizational strategies and business plans
- Sharing and profiling **best practices** to move beyond “*business as usual*”
- Driving forward **technological development**, application and innovation under the Green Industry Initiative
- Coordinate **awareness raising** activities in-house, as well as external partners and Member States
- **Advocacy** activities through social media, press releases, news outlets and global forum activities



Green Industry Platform

- Based on voluntary commitment
- The Platform's precise structure, thematic priorities, work programme and budget will be decided upon by UNIDO and partner UN bodies (in particular UNEP) and with the counsel of an Advisory Board
 - **Advisory Board**
 - Chaired by the Director-General of UNIDO
 - Comprise 10-15 top senior representatives from governmental, private and civil society sectors around the world
 - Members invited to serve for 3 year term
 - Secretariat Services to the Platform will be provided by UNIDO and UN partner bodies
 - Work Program and Schedule of the Platform will be determined by this Board
 - **Interim Advisory Board** (First meeting held on 3 May 2012 in Vienna)
UNIDO Seminar, Tokyo



By 2014...

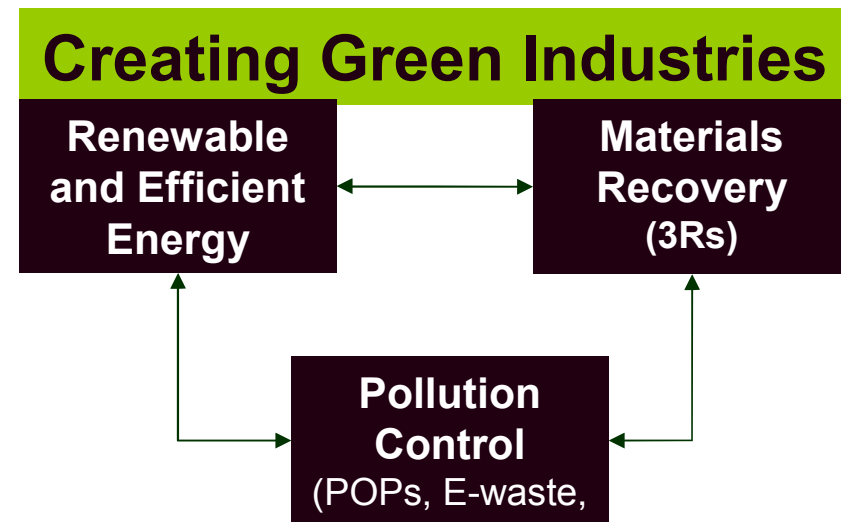
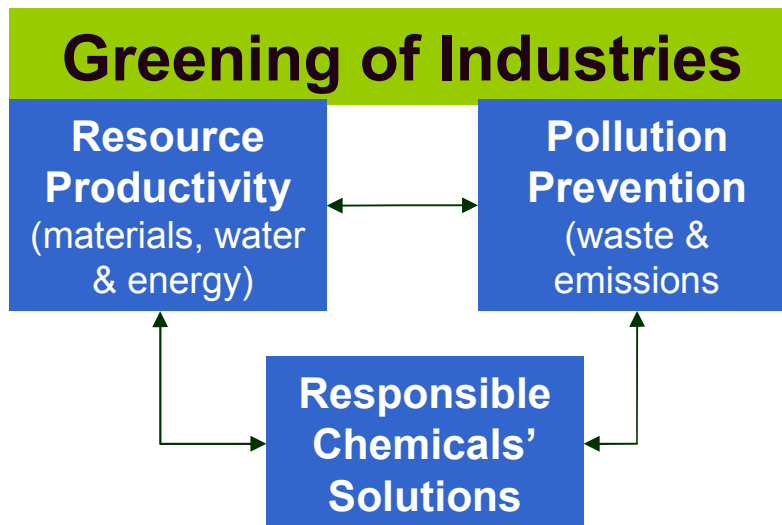
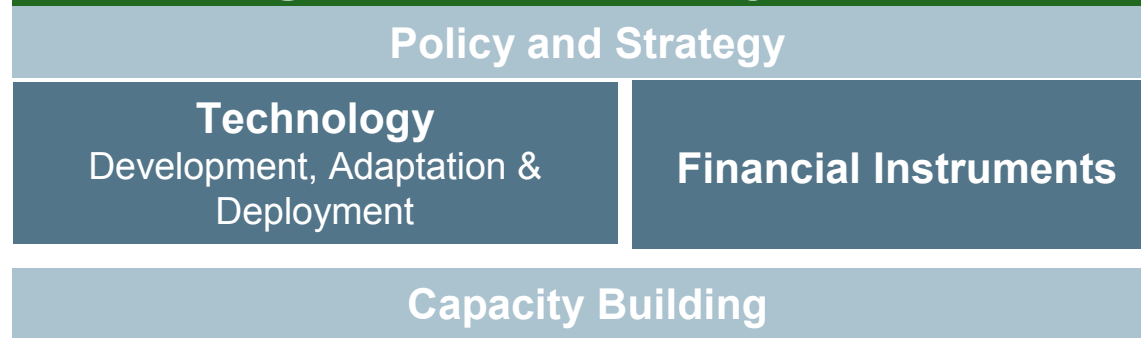
- **Signatures expected from:**
 - 200 Businesses
 - 50 Governments
 - 50 Organizations

- **Operational / Working Groups established:**
 - **Greening of the Supply Chain**
(2-4 programmes designed and under implementation);
 - **National Consultative Processes / Panels / Roadmaps**
(at least 2-4 roadmaps defined and under implementation);
 - **Capacity Building**
(e-learning, toolkits, regional trainings – “Factory for the Future” summer courses)
 - **Cleantech Programmes**
 - **3GI Public Private Partnership Programme**



UNIDO Green Industry Agenda

Enabling Green Industry Framework





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GI Flagship:

Resource Efficient and Cleaner Production

- Continuous application of preventive environmental strategies to processes, products and services to increase efficiency and reduce risks to humans and the environment
 - RECP addresses three sustainability dimensions individually and synergistically:
 - *Production efficiency*
 - Through improved productive use of natural resources by enterprises
 - *Environmental management*
 - Through minimization of the impact on nature by enterprises
 - *Human development*
 - Through reduction of risks to people and communities from enterprises and supporting their development



28 August 2012

RECP= RECiPe

UNIDO Seminar, Tokyo





National Cleaner Production Centres

- Established to foster adaptation and adoption of RECP
 1. Information and awareness creation
 2. Professional training
 3. Plant level assessments and demonstrations
 4. Policy advice
 5. Technology transfer and investment



Programme launched in 1994 and since expanded to 50 countries





Enterprise Level



- Pwani Oil Products
 - Kenyan producer of edible oils and fats and laundry soap bars

Principal Options Implemented	Benefits			
	Economics		Resource Use	Pollution Generation
	Investment	Annual Savings		
Energy Use: efficient lamps; timers; new VSD compressors; steam heating of sleeves; power factor improvement; repair and rationalization of steam pipes	N/A	\$422,372	5% energy conservation (~2.8 million kWhr)	
Material Use: efficiency improvements in refinery; process synchronization to avoid overflows; reduction of reworks, spills and leakages	N/A	\$10,347	5% reduction (>5,500 ton/yr)	25% reduction of waste (~240 ton)
Fuel Switch: switch from fuel oil to waste biomass and boiler optimization	N/A	\$ 180,398		98% reduction of on-site GHG (~22,550 tons)
	not quantified	>\$620,000		

Investments could be incorporated in capacity expansion programme

Assisted by the Kenya Cleaner Production





Enterprise Level

- Metalextracto



- Small Peruvian secondary lead smelter

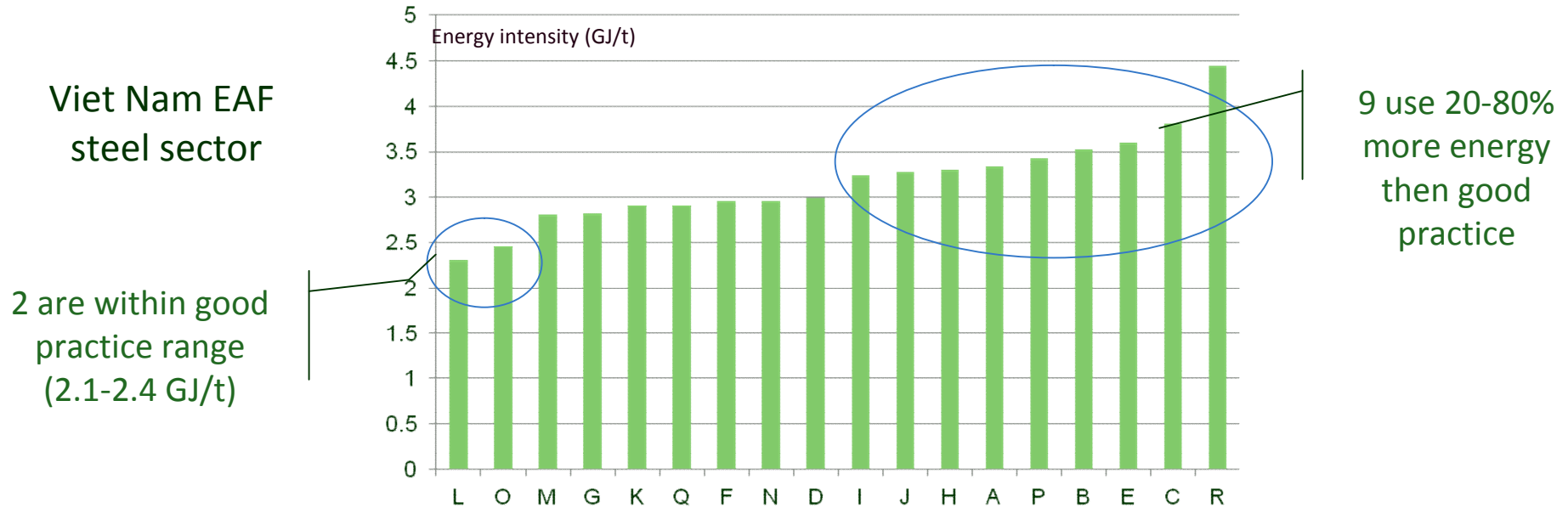
Principal Options Implemented	Benefits			
	Economics		Resource Use	Pollution Generation
	Investment	Annual Savings		
Change of refractory bricks from 31% to 50% Al ₂ O ₃ and installation of a hood on the furnace	\$ 2,500	\$17,400	Additional recovery of 34.7 t of lead/year, and 19% less lead in the slag.	19% less lead in slag, and decreased waste quantity
Change of burner and optimization of residual fuel and diesel, and improved fuel mixing	\$ 1,000	\$ 1,200	Decrease of residual oil use by 2.66%	Air emissions reduced by 240 ton CO ₂ eq.
Warming of the fuel taking advantage of the residual heat of the oven	\$ 300	\$ 200	Decrease of electricity use by 5,760 MJ	
	<\$ 4,000	>\$18,000		



Assisted by Centre de Ecoeficiencia y Responsabilidad Social Peru



Sector Level

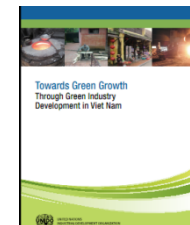


Viet Nam EAF steel sector

2 are within good practice range (2.1-2.4 GJ/t)

9 use 20-80% more energy than good practice

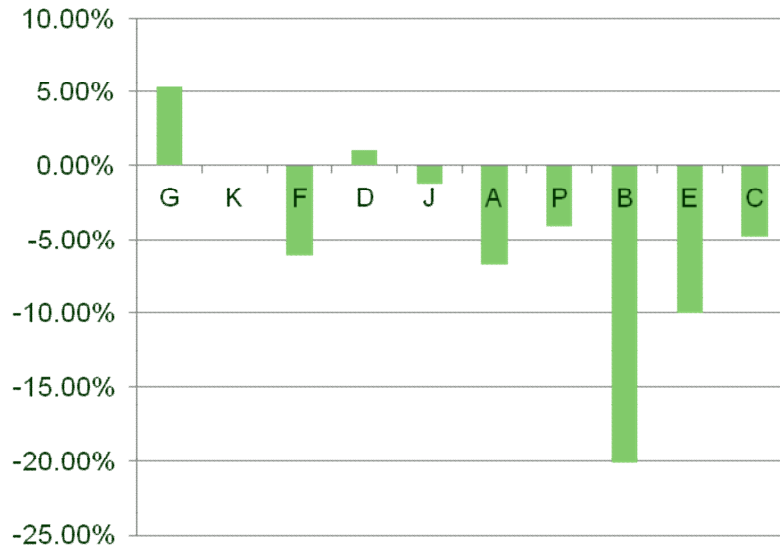
- Energy intensity significantly higher than international good practice
 - Low scrap quality
 - Insufficient process monitoring
 - Lacking slag analysis
 - → compounded by limited basic furnace and metallurgical knowledge





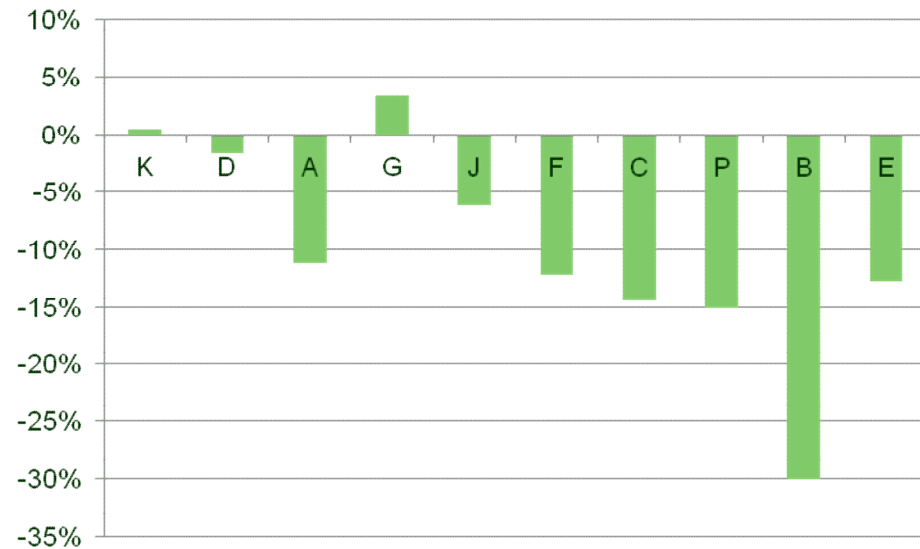
Sector Level

Energy Reductions

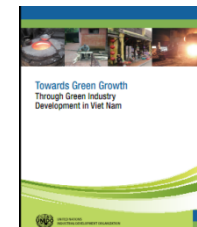


7 improved, 4 thereof reduced energy by 6-21%

GHG Reductions



8 improved, 6 thereof reduced GHG emissions by 10-30%





RECPnet



- Not-for-profit initiative under patronage of UNIDO and UNEP to bundle and utilize existing capacities of NCPCs and RECP service providers
 - Charter and supportive by-laws on membership and code of conduct developed and agreed upon
- Objectives
 - Enable and contribute to effective RECP promotion and implementation
 - Foster North-South and South-South collaboration and transfer of methods, policies and technologies
- Functions
 - Innovation and knowledge management
 - Capacity building
 - Advocacy
 - Quality control and branding
- *Became operational on 3rd November 2010 with initial membership of 41 organizations*
- *First Members Assembly on 19th October 2011 in Nairobi*





GI Policy and Strategy

■ Publications

- Green Industry Policy Guidelines
- Green Industry Initiative



■ Desk Reviews

- Viet Nam, India, China, South Africa, Indonesia, South Africa, Nigeria

■ Policy Research

- ASEAN green industry pathways – Viet Nam, Thailand, Malaysia, Philippines and Indonesia

■ Policy Advisory

- Development and promotion of policy framework, combined with and informed by scaleable GI Pilots

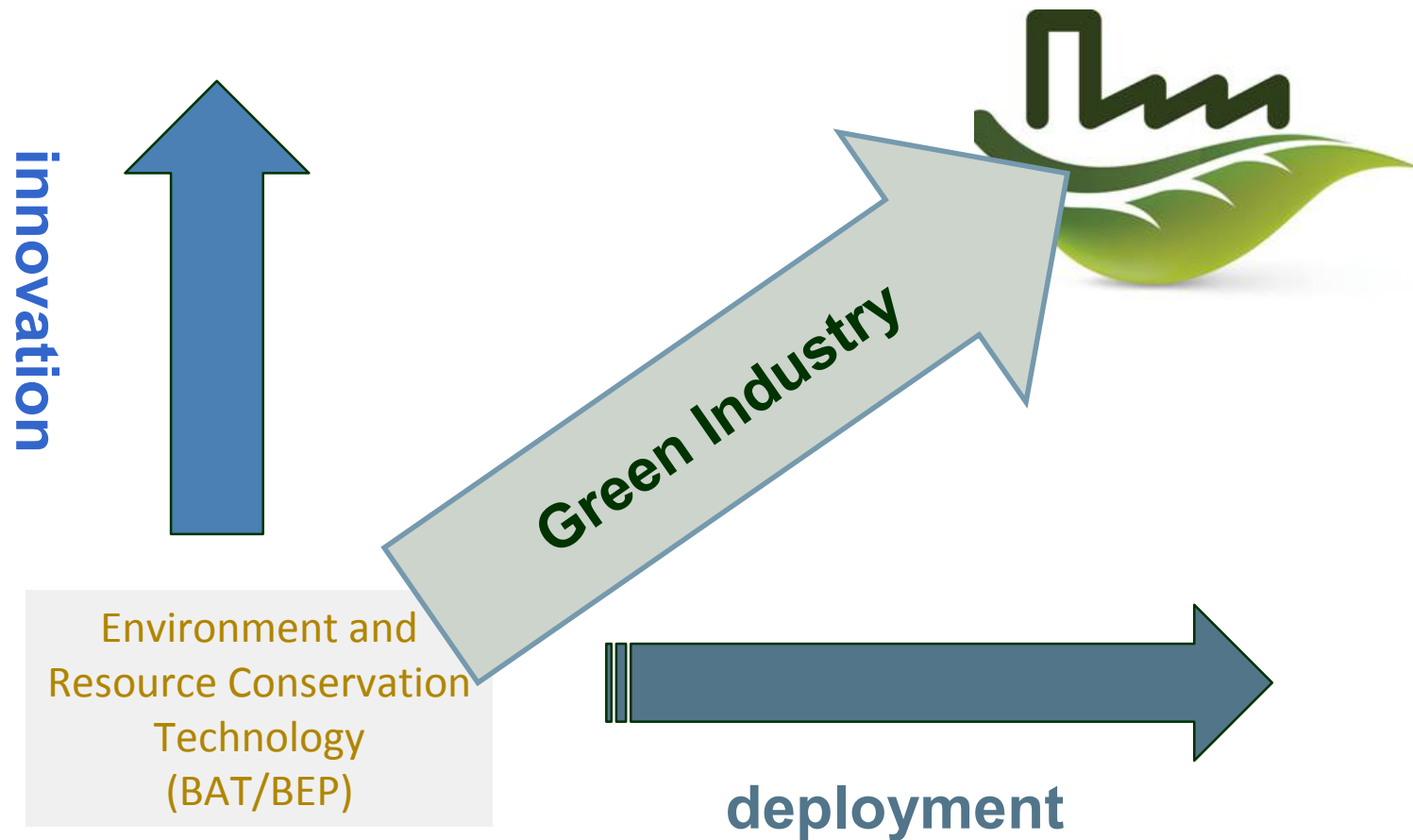


- First stage completed in Viet Nam
- Planned for Cambodia, Lao and Myanmar for low carbon growth
- Planned for India



GI and Technology

a two pronged agenda





GI Technology: Deployment

■ Promotion



- Showcase and demonstrate available technologies and techniques

- Exhibitions
 - INCHEM
 - Rio+20
- Conferences
- Publications



■ Demand Creation

- Policy and enabling environment
- Business services provision
- Innovative financing and business models
- Demand bundling
 - Sector roadmaps
 - Eco-Parks/Towns





GI Technology: Innovation

- Technology Transfer

- Project based under GEF and MP
- Proposed Climate Technology Centre and Network

- Platform Technologies



- Green Chemistry

- Biotechnology

- International Industrial Biotechnology Network



- (IT)



In Closing

- GI is the sector strategy for achieving green growth and green economy in manufacturing
 - GI is necessary from environment, resource, climate and economic perspectives
 - Technology will realize GI objectives
 - But will only be adopted and adopted on large scale when supportive policies, management, capacities and consumer behavior are in place
 - GI Platform is a public-private-partnership to promote GI concepts, policies and techniques, and catalyze action
 - Open for participation from Japan!!



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Thank You



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www.unido.org/greenindustry