



Green Industry

Skills development in the context of greening industries

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Structure

- Global Context
- Definition and Concept of Green Industry
- Action agenda: Examples of global policy / strategy and national operational level green skills development projects



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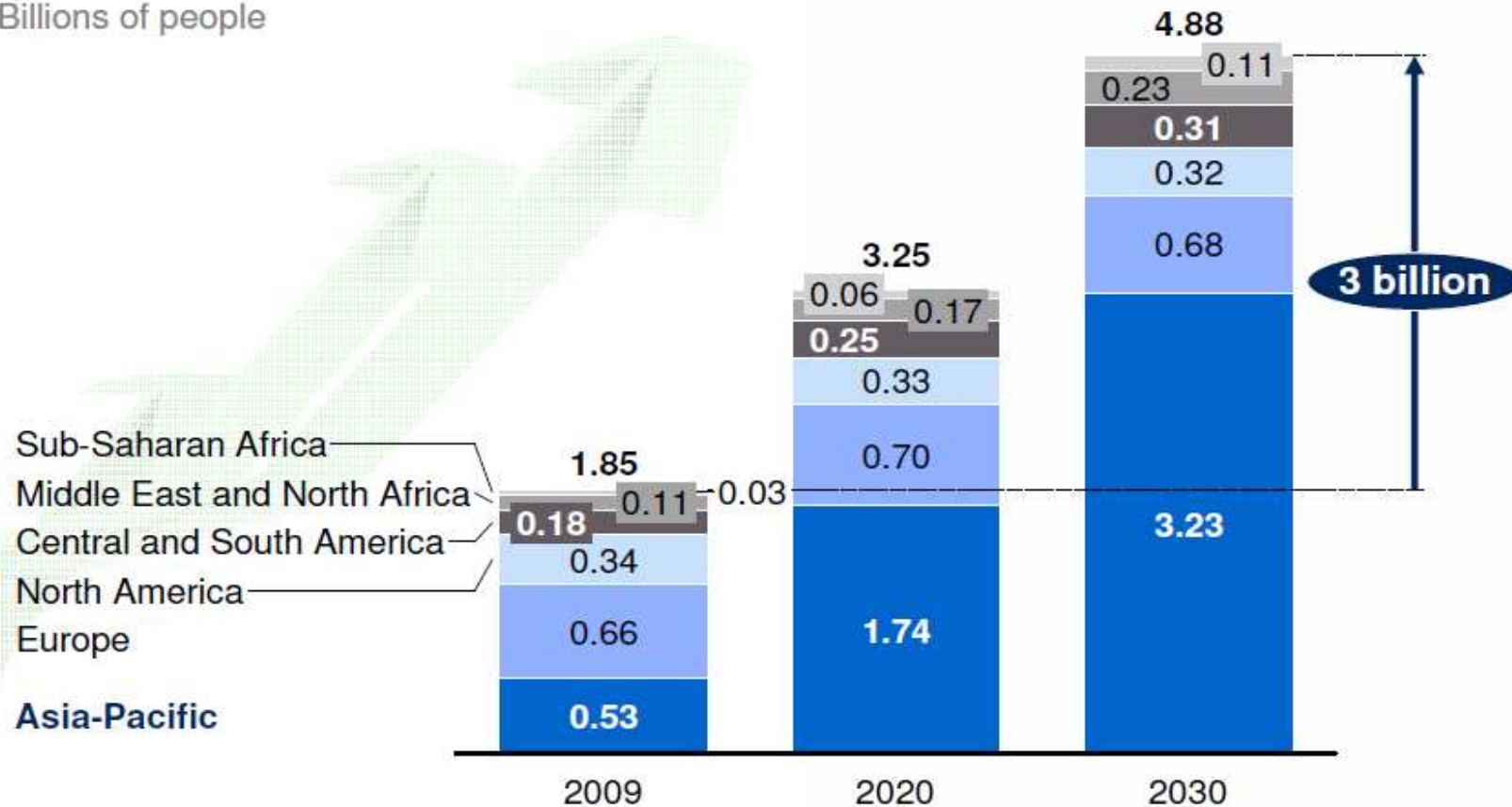
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Global Context



The emergence of 3 billion middle-class consumers will fuel future demand

Global middle class¹
Billions of people



¹ Based on daily consumption per capita ranging from \$10 to \$100 (in purchasing power parity terms)

SOURCE: OECD

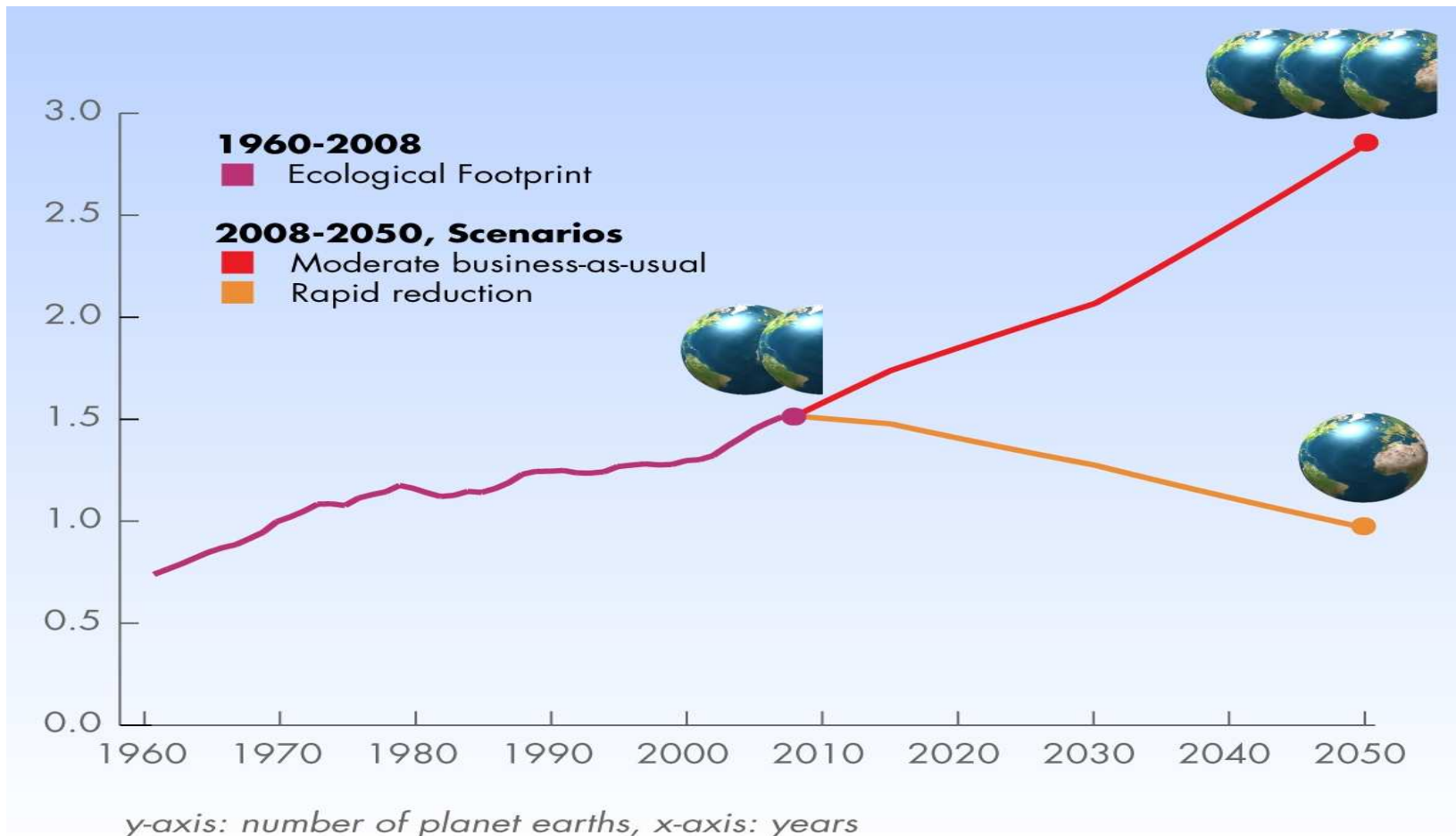


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We're living beyond our means...our planet





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Main Categories of Resource Use

Abiotic materials (incl. fossil fuels)

Biotic materials

Water

Land area

Greenhouse gas emissions



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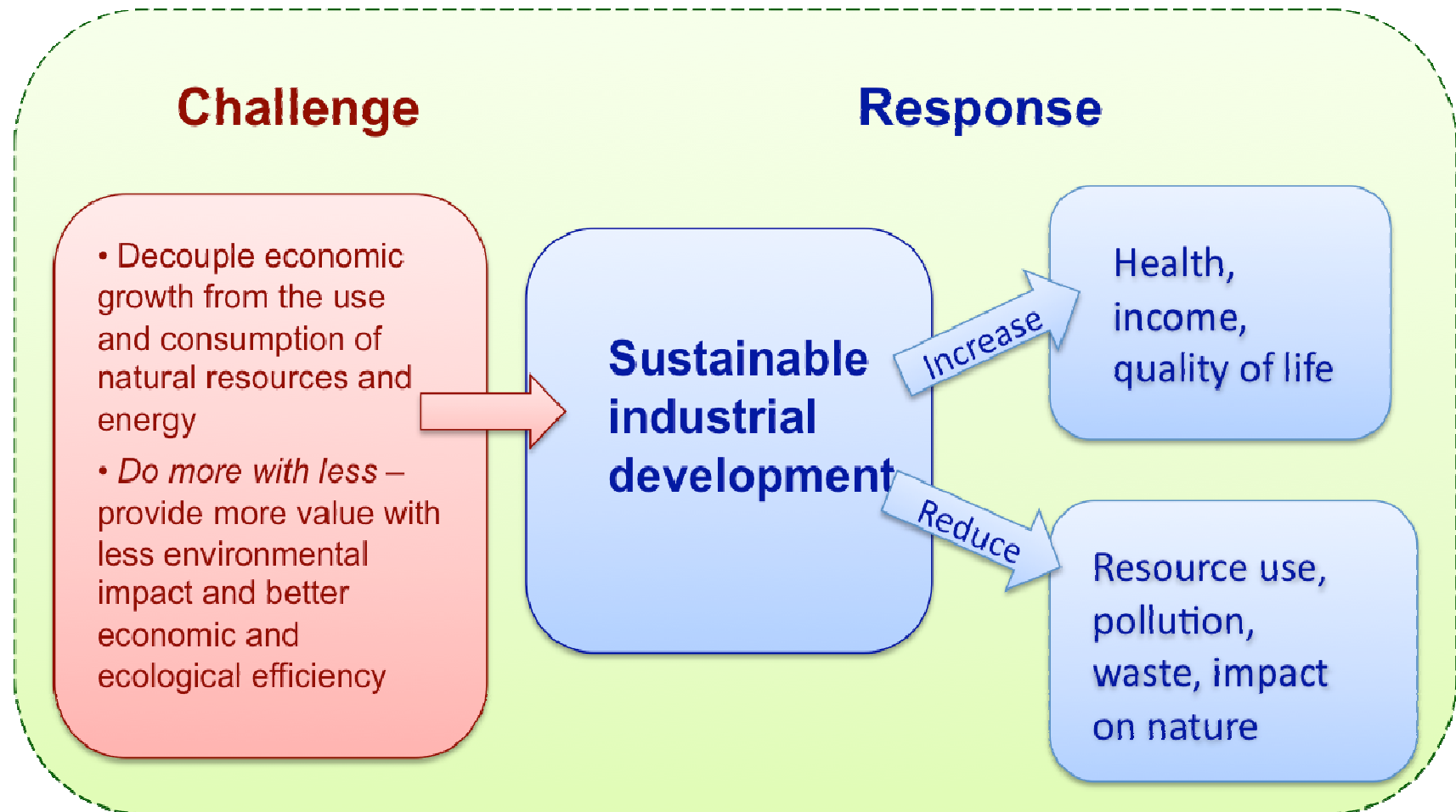
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Key Facts on Industry's Contribution

- Global industrial production to increase by factor of 4 by 2050.
- Industrial sector uses more energy globally than any other end-user sector – current consumption: One third of the world's total delivered energy.
- Manufacturing industry: Responsible for nearly 20% all CO₂ emissions, 20 % of global water use and most of the raw materials used.
- Industry gives rise to other GHG emissions (methane, nitrous oxide and CFCs – gases that have higher global warming potential than CO₂)
- Globally more than 4 million tons of waste are produced annually and only less than a quarter of these are recovered or recycled.



Challenge





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Definition and concept of Green Industry

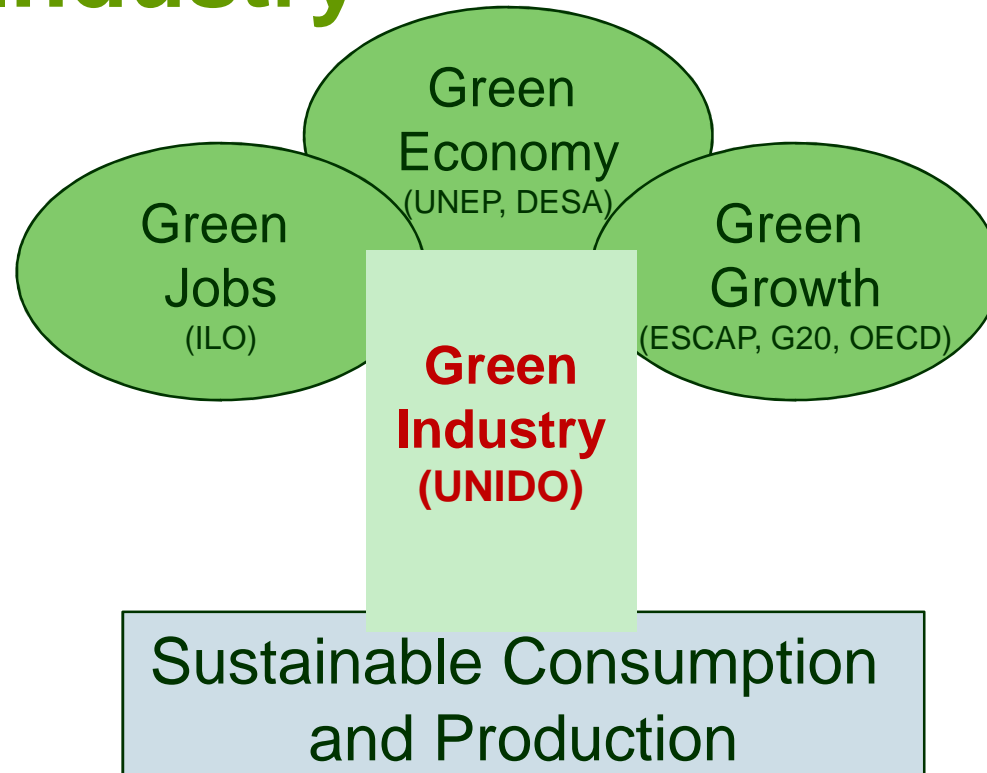


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Macro-level
(policy/strategy)

Micro-level
(operational/
solutions)

Green Industry is a sector strategy for the realization of *Green Growth* – *Green Economy* – *Green Jobs* in the manufacturing and related sectors

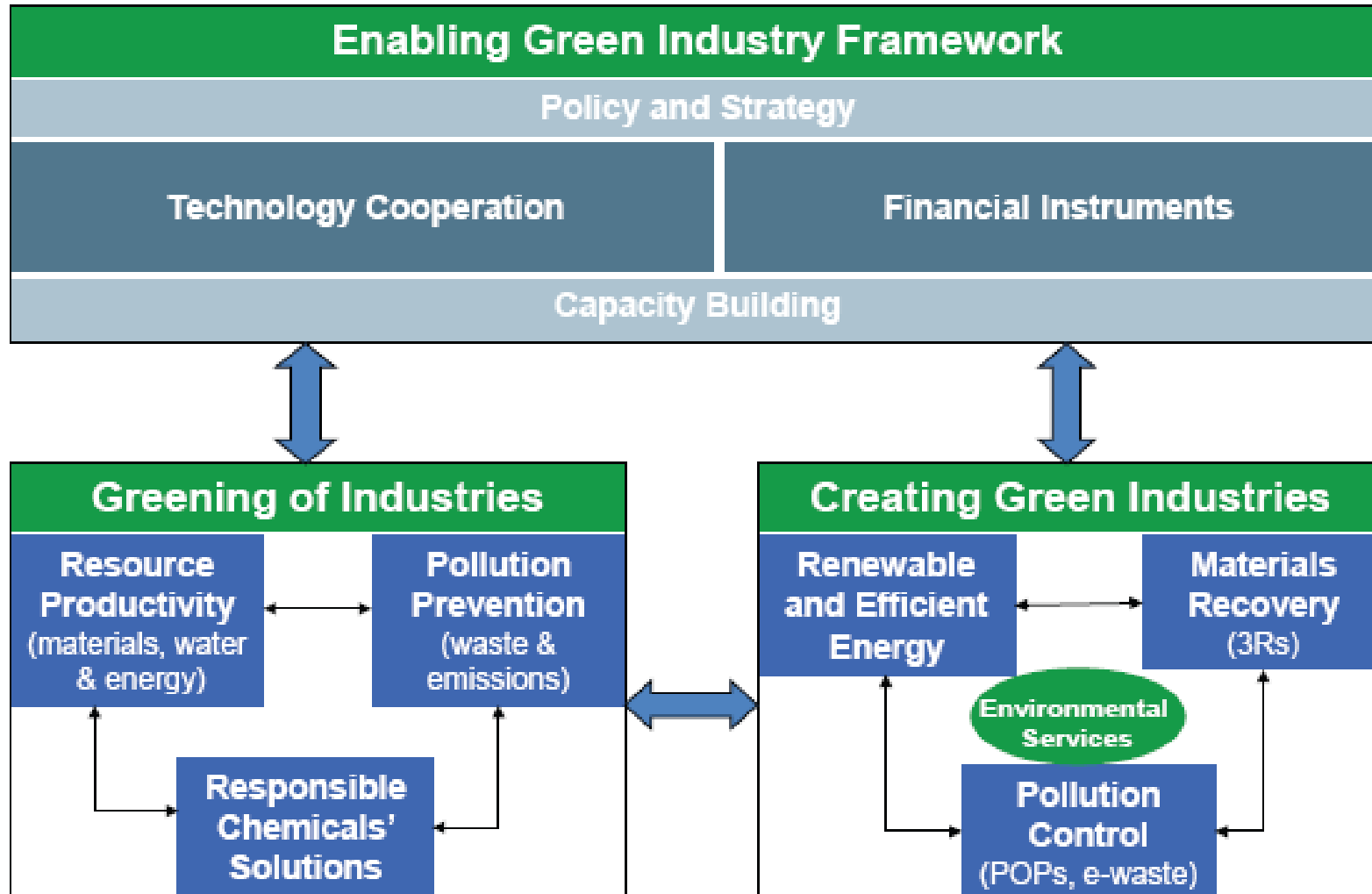


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UNIDO services in Green Industry





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THE GREEN INDUSTRY INITIATIVE

<p><i>Greening of Industries</i> <i>Helping enterprises improve resource productivity and environmental performance</i></p>	<p><i>Creating New Green Industries</i> <i>Establishing new operations delivering environmental goods and services</i></p>
<ul style="list-style-type: none">▪ Efficient use of materials, energy and water▪ Reduction of wastes and emissions▪ Safe and responsible management of chemicals, renewable raw materials▪ Phasing out toxic substances▪ Substituting fossil fuels with renewable energy sources▪ Product and process redesign, Green Chemistry	<ul style="list-style-type: none">▪ Reduce, reuse and recycle (3R) industries▪ Pollution control technology and equipment▪ Renewable and energy-efficient technologies▪ Waste management and resource recovery▪ Environmental advisory and analytical services



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BENEFITS OF GREEN INDUSTRY

<i>Economic</i> <i>More Innovation and Growth; Increased Resilience...</i>	<i>Social</i> <i>More Employment, Rising Incomes and Empowerment...</i>	<i>Environmental</i> <i>More Efficient Resource Use; Less Waste and Pollution...</i>
<ul style="list-style-type: none">✓ Increase resource productivity✓ Bring down production costs✓ Foster technology development and innovation✓ Improve competitiveness✓ Open up new markets✓ Develop new businesses	<ul style="list-style-type: none">✓ Create new jobs and make existing jobs more secure✓ Reduce poverty✓ Develop new skills and capacity✓ Improve occupational health and safety conditions✓ Safeguard health and safety of communities✓ Lower risks to consumers	<ul style="list-style-type: none">✓ Reduce environmental pollution✓ Counteract resource depletion✓ Prevent degradation of ecosystems✓ Mitigate climate change✓ Combat water scarcity



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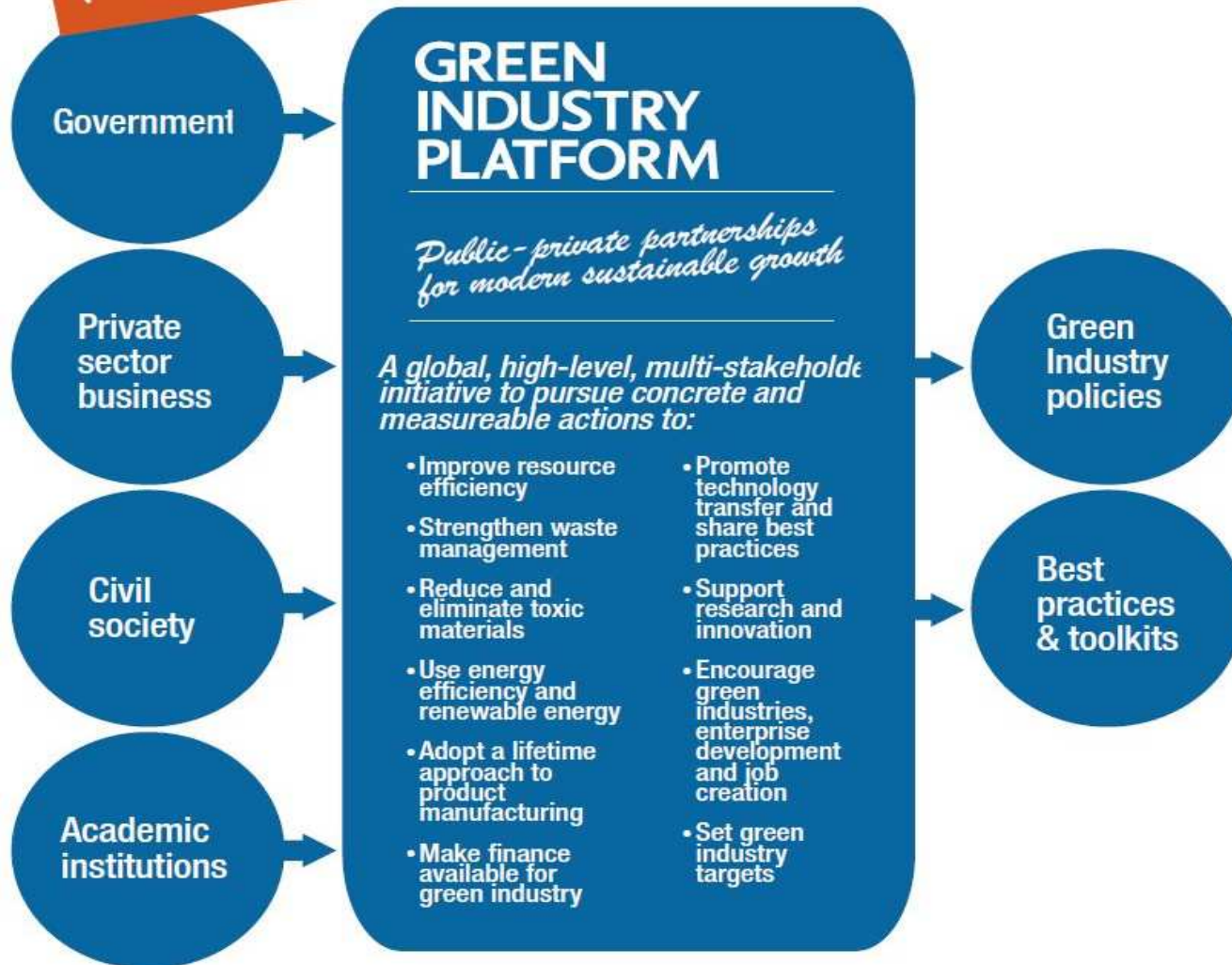
GREEN INDUSTRY PLATFORM LAUNCHED AT RIO+20



- High-level, multi-stakeholder, transformative partnership framework
- Businesses, governments, international and civil society organizations have joined by signing the “Statement of Support”
- Scales up and mainstreams Green Industry throughout global industry
 - **Reduces** the negative environmental impact of manufacturing
 - **Increases** social and economic benefits



THE RESPONSE





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Action agenda at macro level concerning policy and strategy:

- **UNIDO Institute**
- **PAGE**



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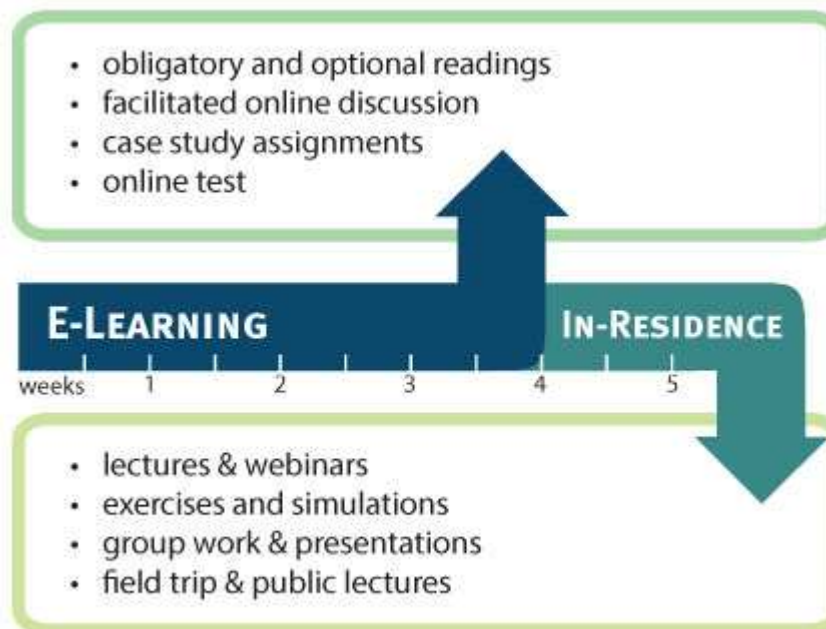
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UNIDO Institute training courses (1)

Summer Course in Budapest:

Green Industry: Pathways Towards the Industry of the Future

- In cooperation with the Department of Environmental Science and Policy of Central European University (**CEU**) in Budapest, Hungary; University of Applied Sciences and Arts, North-western Switzerland (**FHNW**) and the Swiss State Secretariat of Economic Affairs (**SECO**)





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UNIDO Institute training courses (2)

Regional Winter Course in Manama, Bahrain (January 2014)

Pathways Toward Green Industry in the GCC and MENA Region

**UNIDO Green Industry Training Programme for young leaders
in the Middle East and North Africa (MENA)**

- In cooperation with the Arabian Gulf University (**AGU**) in Manama, Bahrain; UNIDO's Investment and Technology Promotion Office (**ITPO**) **Bahrain** and the Bahrain Supreme Council of Environment
- 8-days residential training programme
- **Topics include:** Green Industry Initiative; Environmental Management; Environmental Technologies; International Chemical Conventions; International environmental standards in trade; Corporate Social Responsibility (CSR); Entrepreneurship Development in the field of Green Industry



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More UNIDO Institute training courses (3)

- **Annual Global Executive Programmes**

Provides high-level government officials with a unique opportunity to learn from UNIDO practitioners and world class academics in short convenient courses.

- **ASEAN+3 Leadership Programme on Sustainable Consumption and Production**

Held annually in Asia in collaboration with UNEP and UNU

- **Green Economy – Policy Measures and Implementation of Green Growth**

In collaboration with Weitz Centre, UNEP, and World Bank Institute, Israel



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UNIDO Institute: Joint Research

Pathways to Green Growth in ASEAN Countries

Joint research with Economic Research Institute for ASEAN and East Asia (ERIA) and Institute of Developing Economies, Japan External Trade Organization (IDE-JETRO) with the purpose to develop green growth strategies for ASEAN countries and to provide policy recommendations to support the relevant policy agenda of the region from 2015 onwards.

Impact of Green Industrial Investment on Employment

Joint research with Global Green Growth Institute (GGGI) with the purpose to examine the relationship between green industrial investment and employment generation.



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United Nations Institute for Training and Research

Partnership for Action on GREEN economy **PAGE**

PAGE supports countries interested in pursuing inclusive, resource-efficient, low-carbon economies.

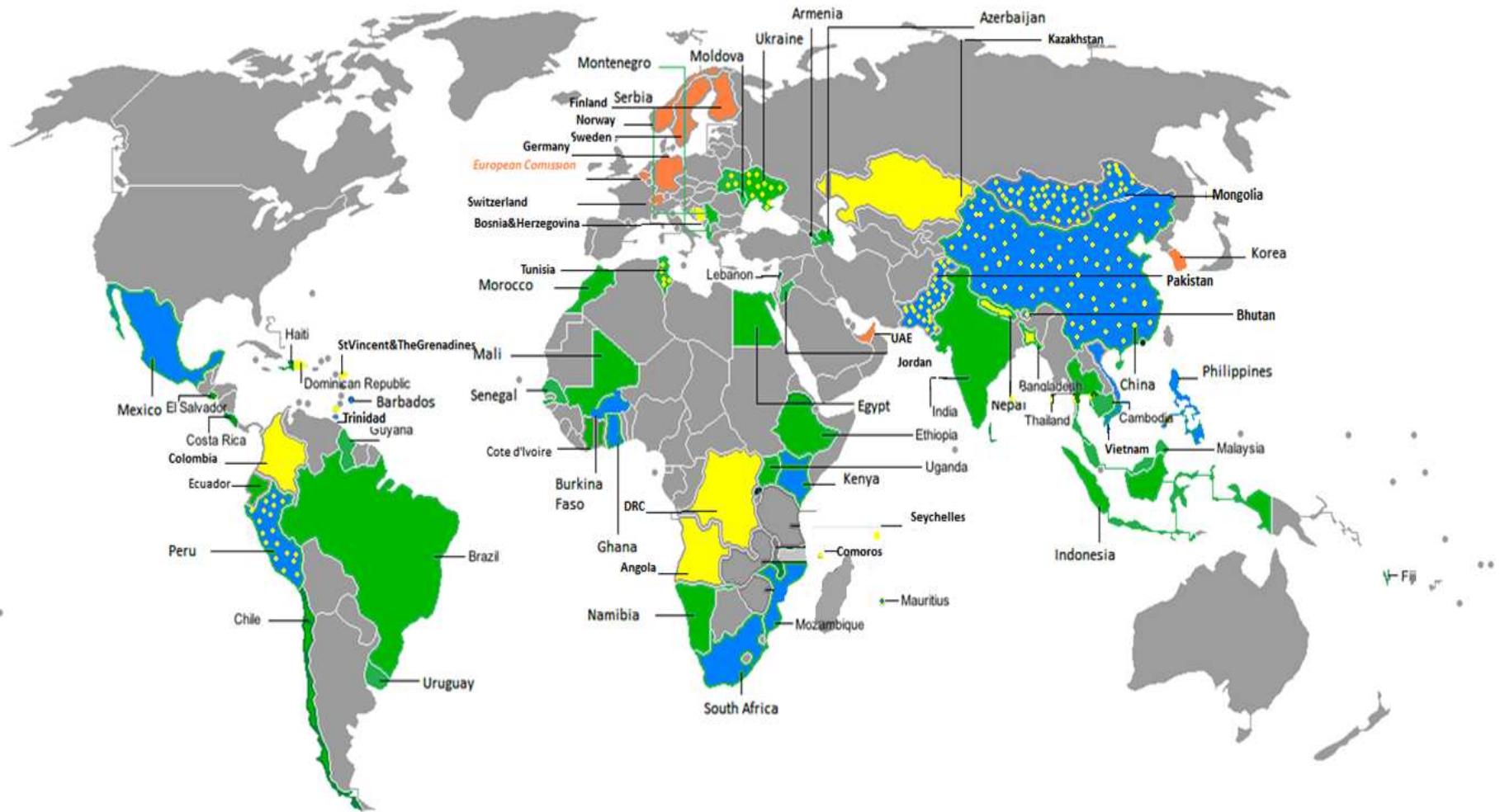
By 2020, PAGE aims to catalyse the transformation process of 30 countries' economies by shifting investment and policies towards the creation of a new generation of assets: clean technology, well-functioning ecosystems, a skilled labour force with green jobs driven by strong institutions and good governance.



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1. Current Green Economy Engagement

2. New Requests

3. Priority PAGE Countries (yellow dots are for New Requests)

4. Friends of PAGE (Sweden, Switzerland, Germany, Finland, Norway, S.Korea, UAE, EC)



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PAGE global activities (1)

Relevant tools and training programmes on green economy are developed and accessible globally	Development of a Green Economy Academy and Leadership Programme
	Development of Green Economy e-learning courses in 2 languages
	Development of five training modules on green economy topics (one basic and 4 specialized) for national level applications
	Development of Green Economy Learners Network, including network infrastructure, on-line data base and interactive discussion tools
	Development of two global train-the-trainers workshops to strengthen capacities of national training and research institutions
	Development of a green industrial policy handbook
	Development of green jobs handbook
	Delivery of 4 Green Economy Academy and Leadership Programmes on Green Economy
	Delivery of 8 green economy e-learning courses in English (4), Spanish (2), French (2)
	Deployment, maintenance and update of GE learners network and required moderation
	Delivery of 8 green economy webinars
	Delivery of 2 train-the-trainers workshops to strengthen capacities of national training and research institutions



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PAGE global activities (2)

Knowledge on green economy is created and shared for country-level applications	Documentation and dissemination of 5 GE best practices (e.g. fiscal policies, industrial policies, green jobs, social inclusion, case-studies, etc.)
	Development of one PAGE flagship research report on a key topic (e.g. on jobs, investment, trade, poverty, etc.)
	Development of handbook on green economy modeling
	Development of practitioners' guide on green jobs/skills assessments
	Development of practitioners' guide on green industrial policies
	Development of common set of global and sectoral indicators to be integrated into green economy assessments
	Hold two global meeting on green economy for 100 participants
	Peer review of green economy knowledge products, liaising through the GGKP
	Stimulate networking among research and policy centres on green economy (CGEs-Centers for Green Economy): initiate discussions, propose joint activities, webinars, and organise face to face meetings for knowledge sharing



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**Action agenda at national micro-level
where technical and operational issues are
addressed:**

- **RECP programme**



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National Cleaner Production Centres



- Established to foster adaptation and adoption of Cleaner Production
 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 expanded to 47 countries

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Thematic Applications

Resource Efficient and Cleaner Production: innovation for low carbon industry

DEMATERIALIZING PRODUCTS

developing new products that require less materials and energy over their lifecycle



INCREASING PROCESS EFFICIENCY

reducing the intensity of use of energy, materials chemicals and water



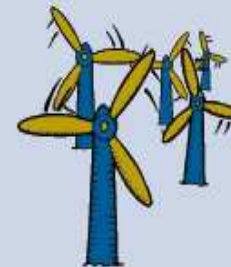
MINIMIZING PROCESS EMISSIONS

adopting clean technologies to minimize the generation of non-energy greenhouse gases



SWITCHING TO LOW-CARBON INPUTS

using renewable and other low-carbon sources of energy and materials



CLOSING THE CARBON LOOP

recovering organic wastes for reuse as feedstock for energy and materials





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Information Resources

- Resource Productivity and Energy Efficiency

- On-line toolkit for SMEs

- Manual and training materials
 - 40 Asian company case studies
 - Technical information sheets
 - Five sectors
 - Cement, ceramics, iron & steel, chemical & fertilizers, pulp & paper
 - Nine countries:
 - Bangladesh, China, India, Indonesia, Mongolia, Philippines, Sri Lanka, Thailand and Vietnam

The screenshot shows the website interface for the 'ENERGY EFFICIENCY GUIDE FOR INDUSTRY IN ASIA'. The header includes logos for Gerlap, UNEP, and Sida. A navigation menu on the left lists: Home, Where do you start, How to become energy efficient, Industry Sectors, Energy Equipment, Tools, and Search. The main content area is titled 'INDUSTRY SECTORS' and features a sub-section for 'Case studies - Iron & Steel'. This section includes a list of companies: Abul Khair Steel Products Ltd (Bangladesh), Shijazhuang Rion & Steel Co Ltd (China), Vishakapatnam Steel Plant (India), PT Krakatau Steel (Indonesia), Darkhan Metallurgical Plant (Mongolia), Steel Asia Manufacturing Corporation (Philippines), CHICO Ltd (Sri Lanka), and G-Steel Ltd (Thailand). An illustration of a worker in a hard hat and safety gear is also present.

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www.energyefficiencyasia.org



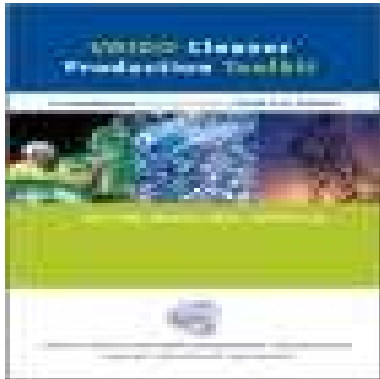
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Training for CP practitioners

- CP Toolkit
 - International training programme for CP service providers
 - Modular structure
 - Introduction to CP
 - Team, Policy and Motivation
 - Material Flow Analysis
 - Energy Analysis
 - Innovation, Creativity and Option Generation
 - Green Procurement and Hazardous Materials
 - Industrial and Environmental Controlling
 - Waste Management and Recycling
 - Audits
 - Networking at National and Regional Level
 - From CP to Environmental Management Systems
 - Hazard Analysis and Critical Control Points
 - Linked with supervised CP audit programme leading to UNIDO endorsed CP award





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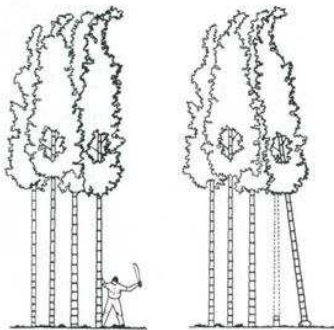


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Targeted vocational training: Vietnam – greening value chains: bamboo and rattan

Issues

- Sustainability of supply
- Treatment to prevent mould and insect attacks
- High material wastage



Greening Solutions

- Raw materials supply
 - Harvest at dawn in dry season, mature, well above ground, and 4 weeks transpiration
- Natural preservation
 - Linseed oil mixed with neem-extract
- New products from waste
- Sustainable product designs





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Vietnam – greening value chains: skills

Grassroots Training

- Fact sheets and manuals by value chain
- 3 ToT's (65 trainers)
- 19 communes
- 1430 households

Vocational Training

- 9 producer groups
- 4 sectors
- 261 households
- Up to 75% increase in incomes reported





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Conclusion

- **Skills development and capacity building are integral parts of any UNIDO project or programme;**
- **Green Industry Initiative with the Platform provide the conceptual framework for the different skills development programmes at policy/strategy and operational levels.**



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Thank You



<http://www.greenindustryplatform.org>