Mobilizing stakeholders for green economy and sustainable industrialization in the context of the 2030 Agenda and COP 21

Eastern Partnership Civil Society Forum

Annual Meeting of Working Group 3: "Environment, climate change and energy security"

Brussels, 13-15 September 2016

Florian Peter Iwinjak

UNIDO Brussels Liaison Office to the European Union

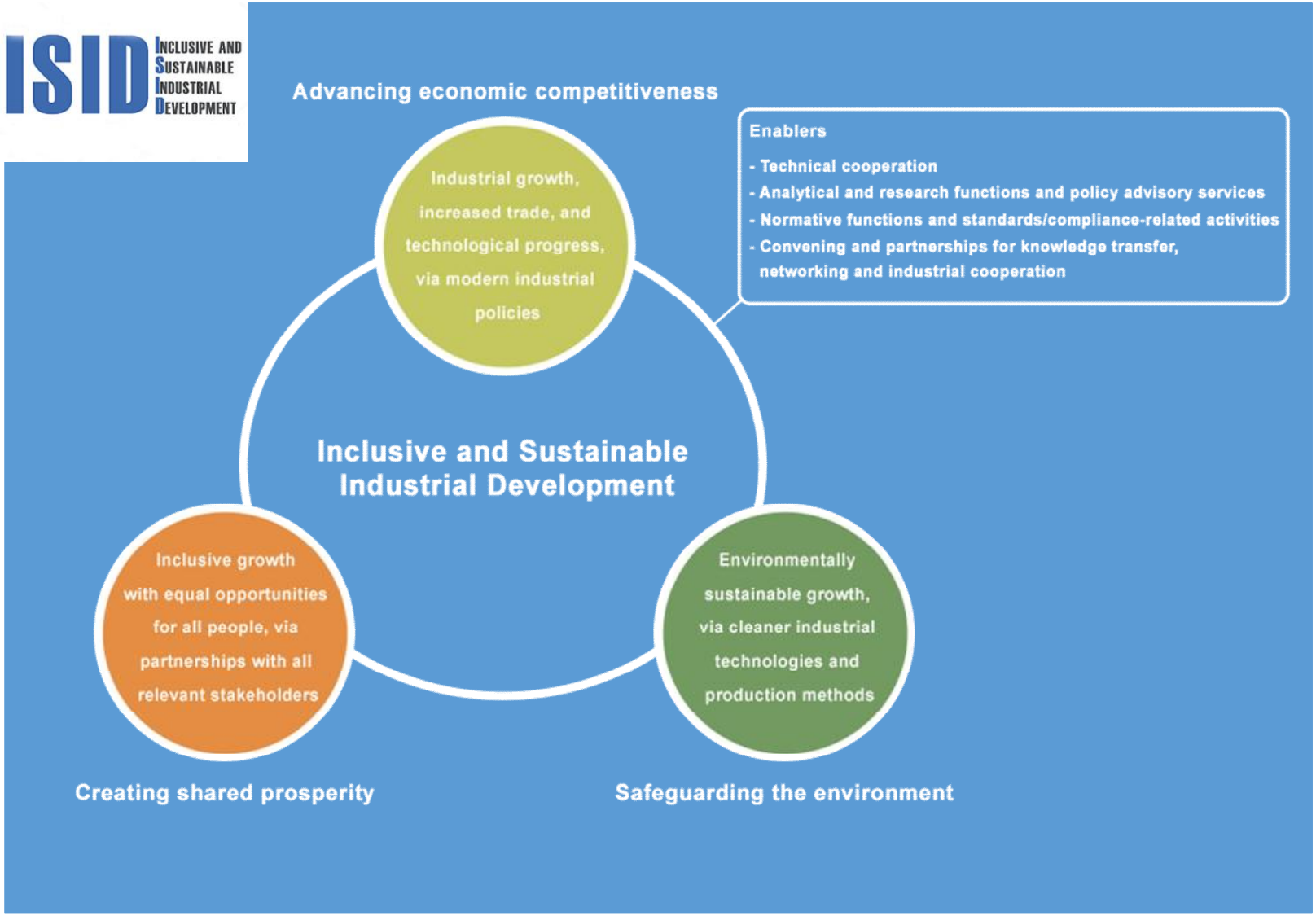
Agenda

- UNIDO: mobilizing stakeholders for Green Economy
- Benefits of moving towards Green Economy
- Green economy and industry: concepts and approaches
- Translating concepts into actions
- Green Economy success stories

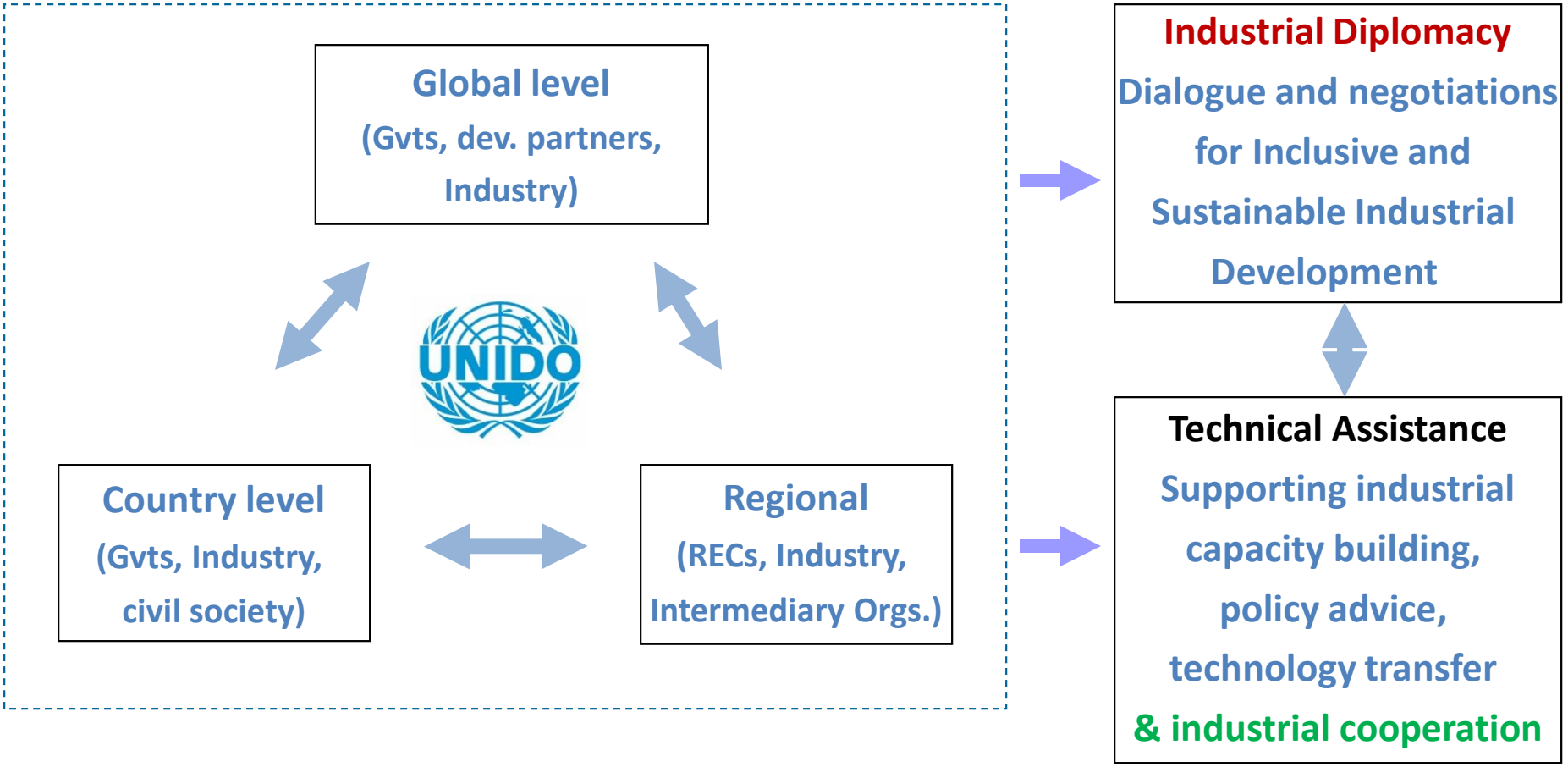
1 UNIDO: mobilizing stakeholders for Green Economy

ISID Inclusive and Sustainable Industrial Development

UNIDO Mandate



Industrial governance and cooperation for ISID



Global Platforms for a progressive agenda

- **UNIDO General Conference (2011, 2013, 2015) and ISID forums**
  - 170+ Member States supporting the 3rd Industrial Revolution and ISID
  - ISID and investments forums fostering sustainable industrialization
  - Key speakers: Ban Ki Moon, J.Yong Kim, J.Rifkin, N.Mimica, J.Potočnik, J.Stiglitz
- **Green Industry Platform (GIP) and Conferences and EREP**
  - Global platforms to boost resource efficiency and green industry
  - Green Industry Conferences
  - GIP Launched in Rio+20: J. Potočnik, M. Barbut, A. Steiner
- **Sustainable Energy for All (SE4ALL) & Vienna Energy Forum (VEF)**
  - Commitments: 80 governments, businesses: $50+ billion, 1bn beneficiaries
  - VEF key speakers: A. Schwarzenegger, Dr. Chambas, etc.
- **Accelerated Agri-business and Agro-industry Initiative (3ADI)**
  - Regional high level conferences (incl. Abuja 2010)
  - 20+ countries already globally to work under 3ADI

The new industrial revolution making it sustainable
GENERAL CONFERENCE Fourteenth Session 28 November-2 December 2011, Vienna, Austria

2012 INTERNATIONAL YEAR OF SUSTAINABLE ENERGY FOR ALL

VIENNA ENERGY FORUM 2011
energy for all—time for action
Vienna, Austria, 21-23 June 2011

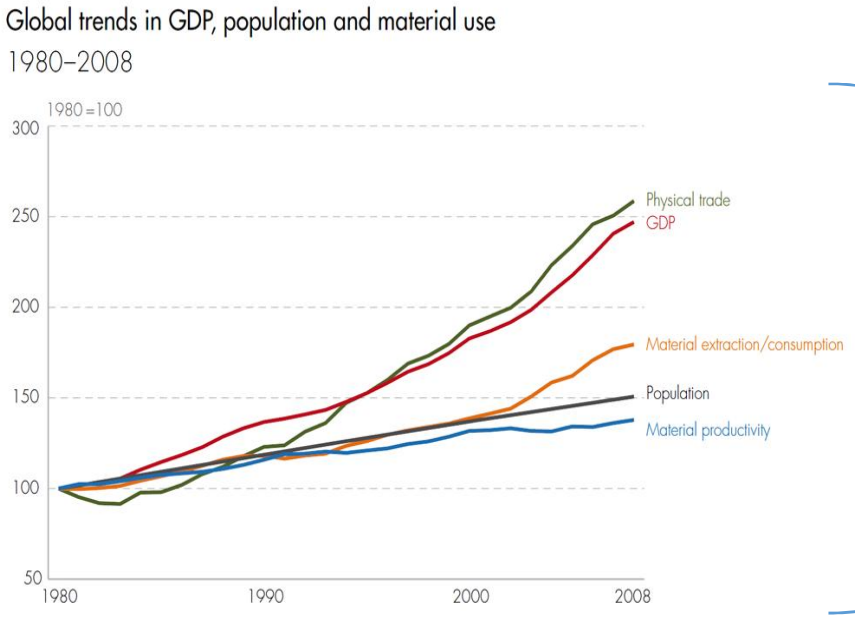
3ADI
Accelerated Agribusiness and Agro-industries Development Initiative

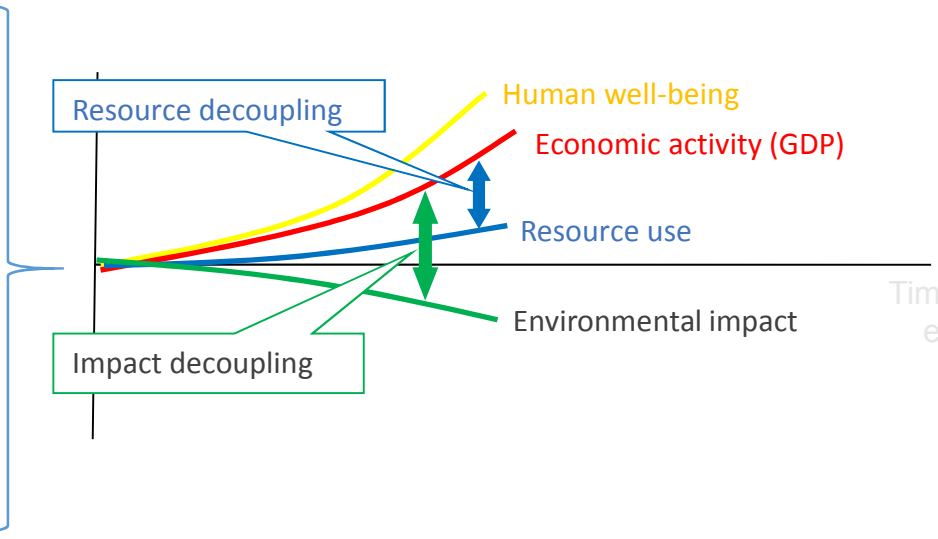
Tackling climate change: highlights

- Montreal Protocol:
  - Each year 5-6 times of 1st phase of Kyoto Protocol in CO2e avoided
  - Until 2010: 70,287 tonnes Ozone Depleting Potential
  - UNIDO: 1200 projects, globally 27% share, 100 countries
- Sustainable Energy efforts:
  - SE4ALL objectives in line with 2 degree Celsius target
  - By 2015: 200 million with electricity and 400 million clean cooking
  - 80 countries opted-in and 118 with RE policy targets
  - UNIDO: ~100 projects, 50+ countries
- Adaptation
  - New: climate resilient industries along energy-water-food nexus
  - UNIDO: several Large Maritime Ecosystems (LME) rehabilitation

2 Benefits of moving towards Green Economy

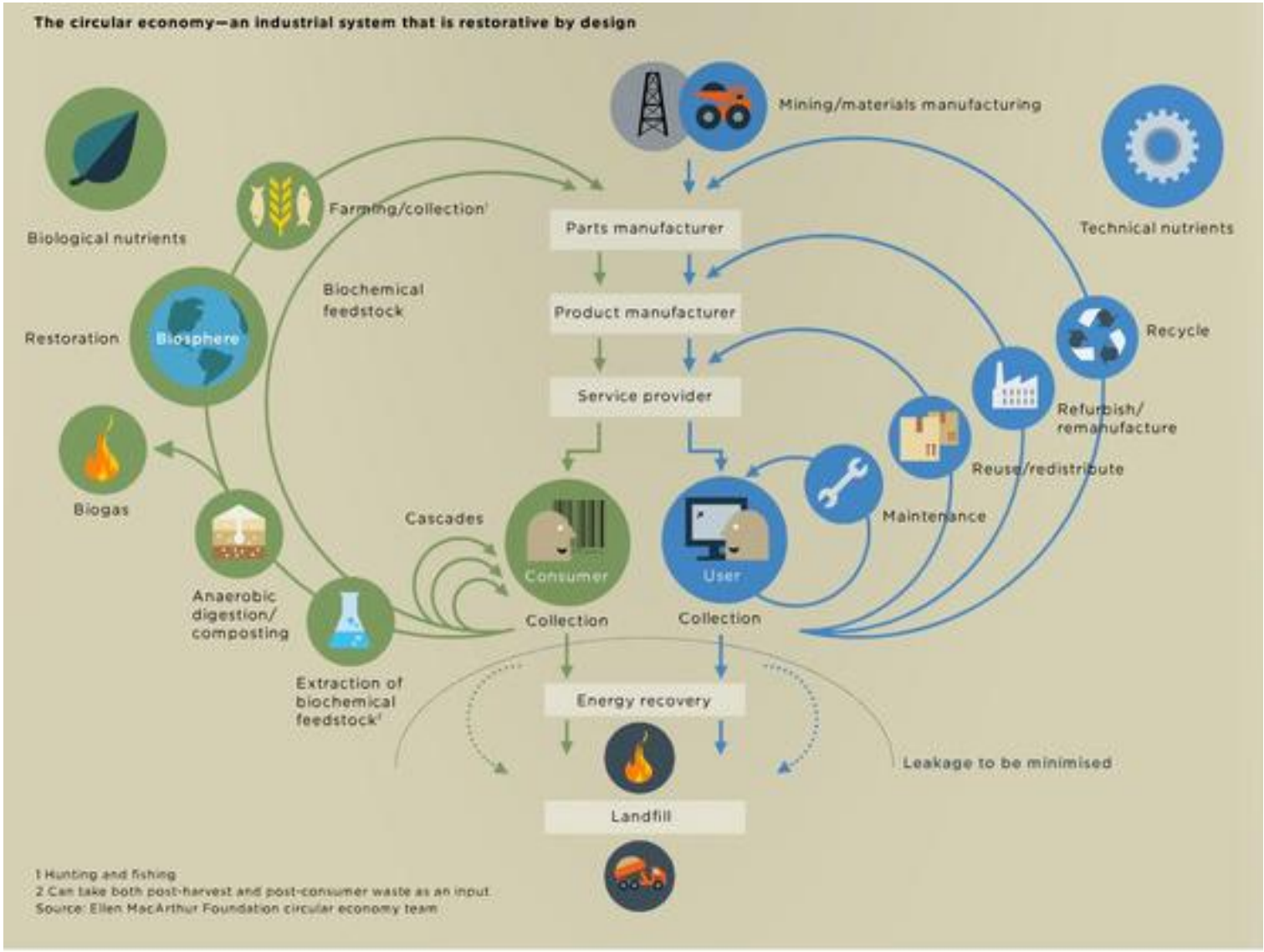
Bringing make sustainability and development together





- Growth worsening scarcity of natural resources
- Growth needed for poverty alleviation and job creation

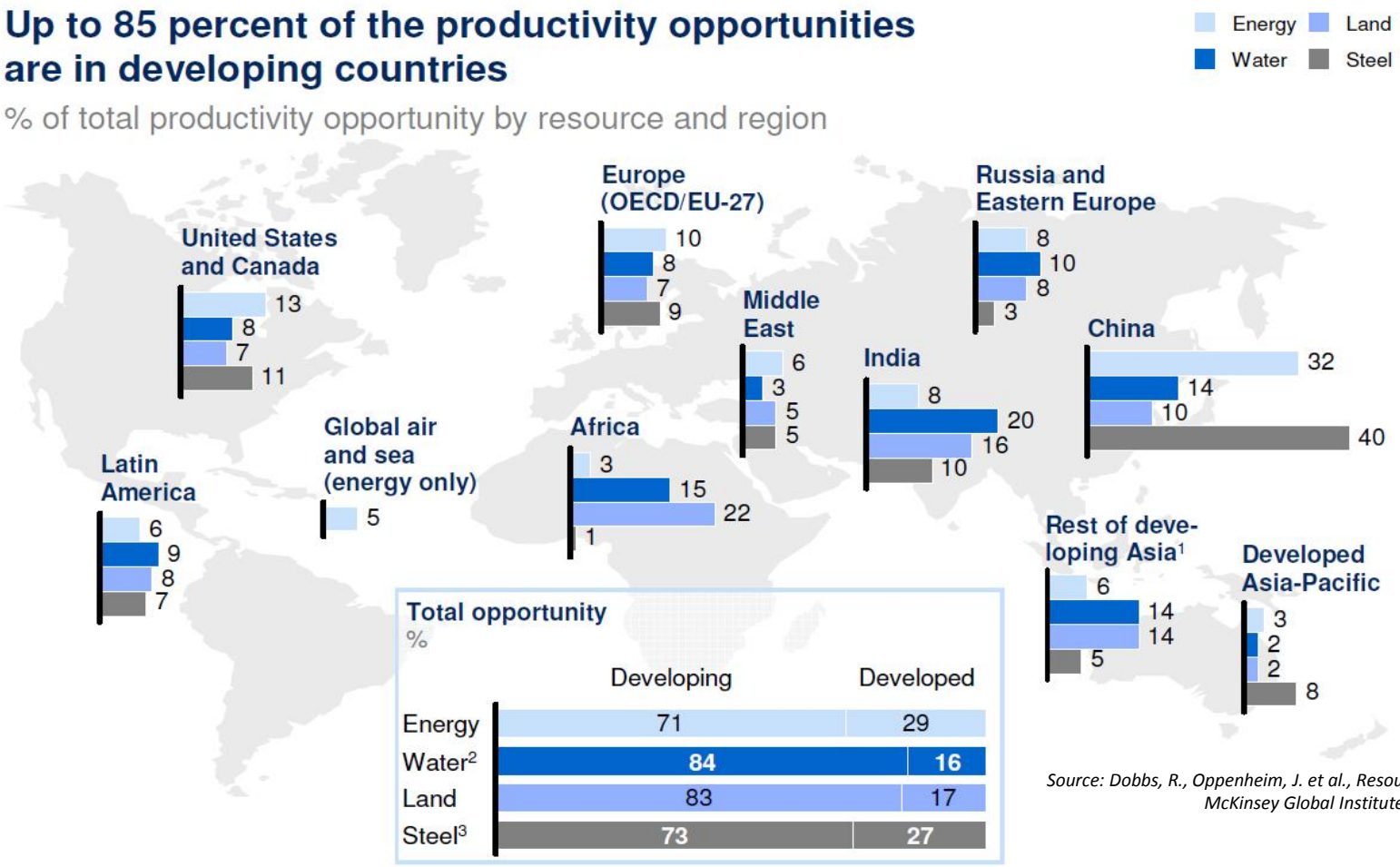
- BAU not possible
- Decouple Growth from Natural Resource Consumption and Negative Environmental Impacts


The circular economy—an industrial system that is restorative by design
Mining/materials manufacturing
Biological nutrients
Farming/collection[1]
Technical nutrients
Parts manufacturer
Biochemical feedstock
Product manufacturer
Restoration
Biosphere
Recycle
Service provider
Refurbish/ remanufacture
Biogas
Reuse/redistribute
Maintenance
Cascades
Consumer
User
Anaerobic digestion/ composting
Collection
Collection
Extraction of biochemical feedstock[2]
Energy recovery
Leakage to be minimised
Landfill
1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input
Source: Ellen MacArthur Foundation circular economy team

Opportunity of resource revolution

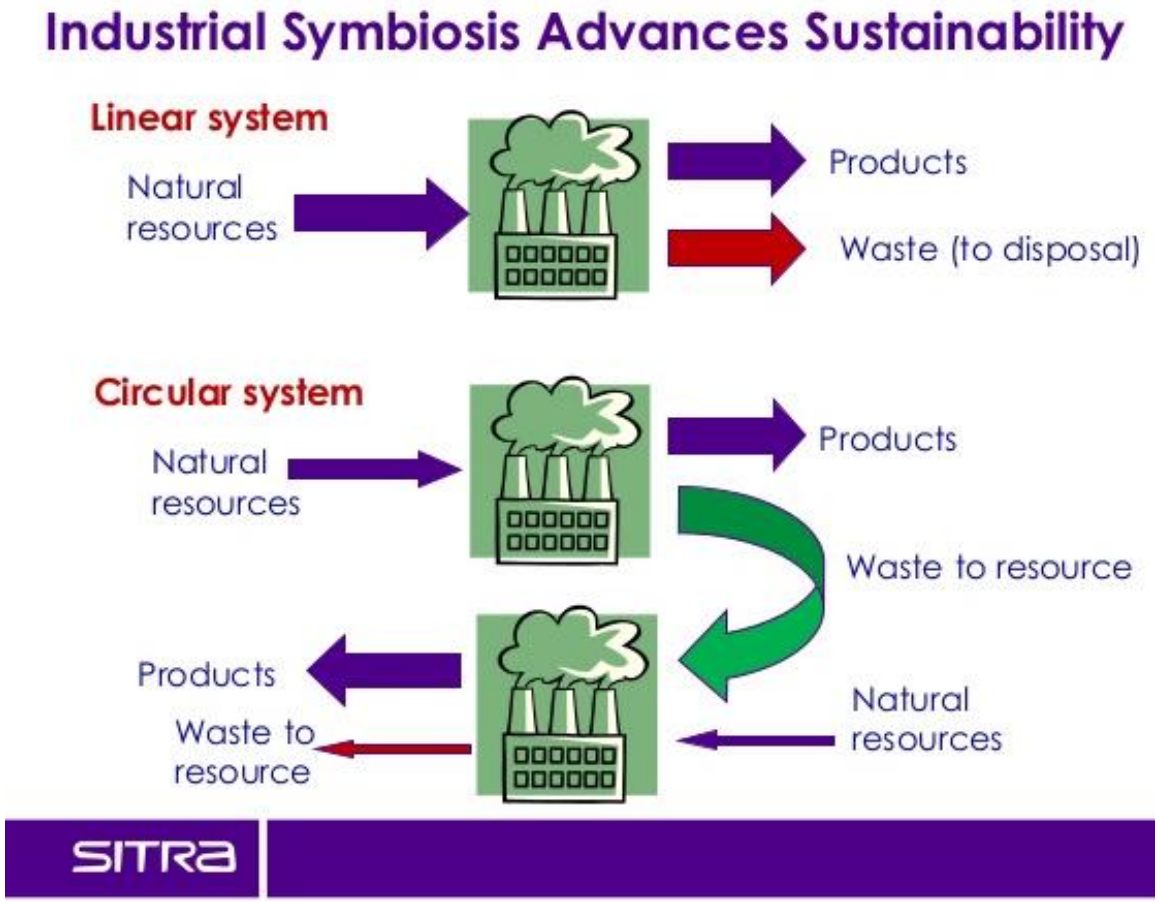
Source: McKinsey 2011

Potential mainly in developing economies



Source: Dobbs, R., Oppenheim, J. et al., Resource Revolution, McKinsey Global Institute, London, 2011

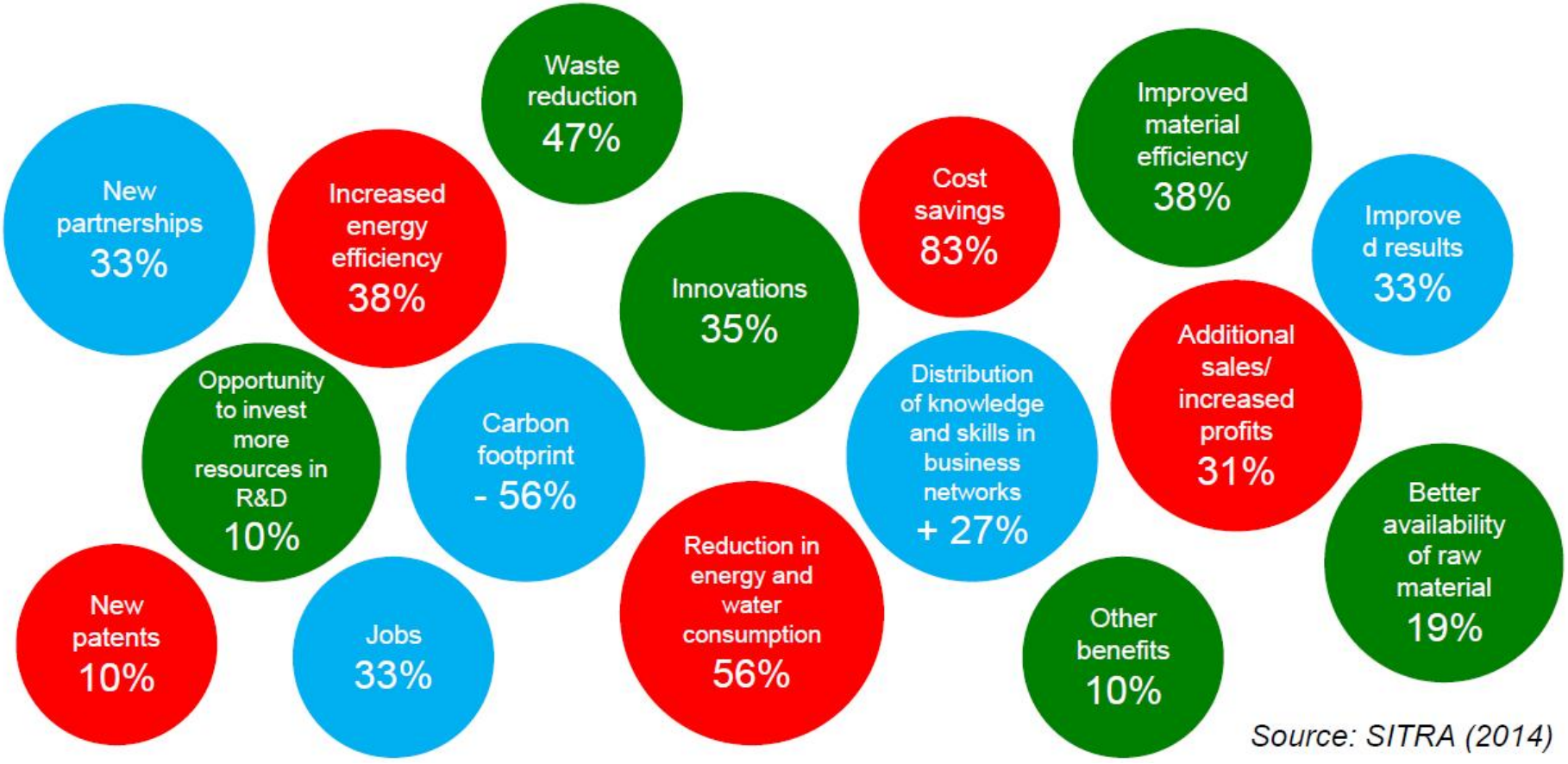
Industrial symbiosis: definition



"Sharing of services, utility, and by-product resources among **industries** in order to add value, reduce costs and improve the environment".

Benefits of Industrial symbiosis for Companies

Respondents: 125 companies
Symbioses: 240



Source: SITRA (2014)

GE impact and opportunities in practice

Industrial Symbiosis

Tianjin Binhai, China
New Area in China: gathered 800 SMEs and created 99 synergies

- 1.4 million tons of waste diverted from landfill
- 167,000 tons of CO2 emissions avoided
- Cost saving of approximately US$9.5 million and an increase in revenues of US$14.6 million.
- Materials recovered are sludge, reused as organic fertilizer and foaming agent; coal ash powder and desulfurized gypsum, used as building materials;

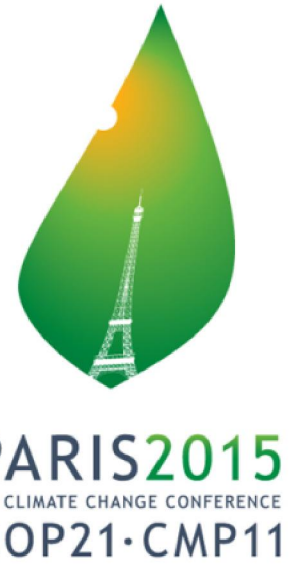
MED-TEST

Egypt, Morocco, Tunisia
Green technology transfer in 43 pilot industries

- 9.7 million m3 water and 263 GWh energy
- Savings per year: US$17 million
- ROI for companies of 54% within 0.5 years and 77% within 1.5 years.
- US$2 million project could leverage US$20 million investments by local companies.

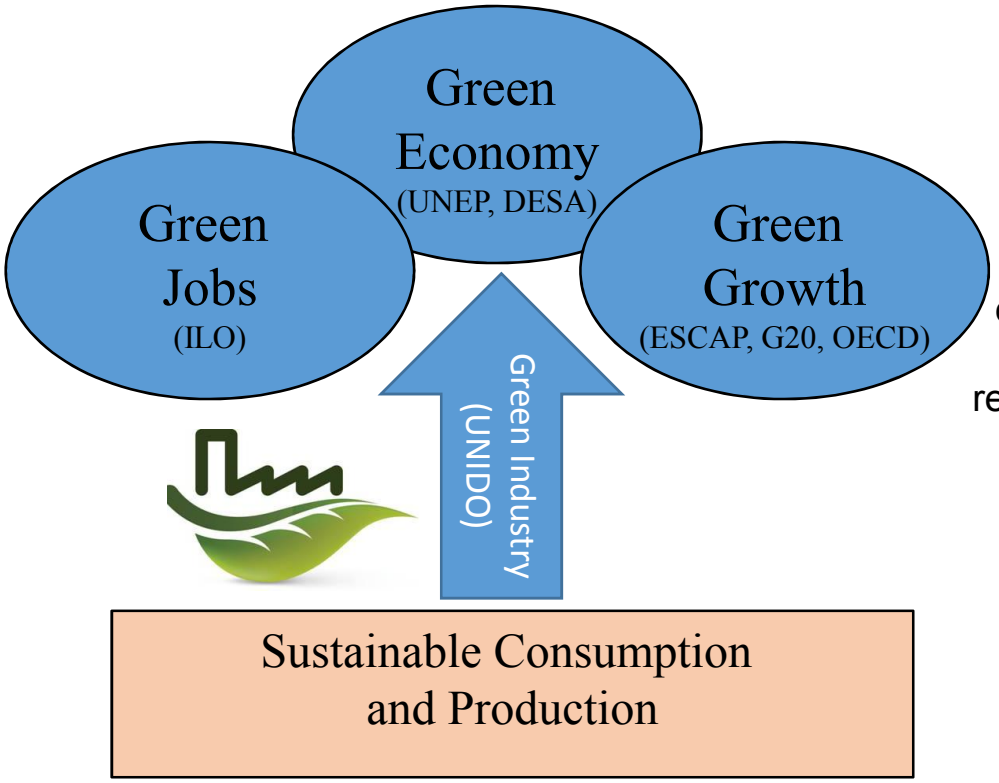
3 Green economy and industry: concepts and approaches

2030 AGENDA and other commitments



Green Economy and Industry

An approach for achieving sustainable development by (1) reducing emissions and pollution and increasing resource efficiency and (2) improving access to energy, food, water, sanitation and other services (UN-EMG)



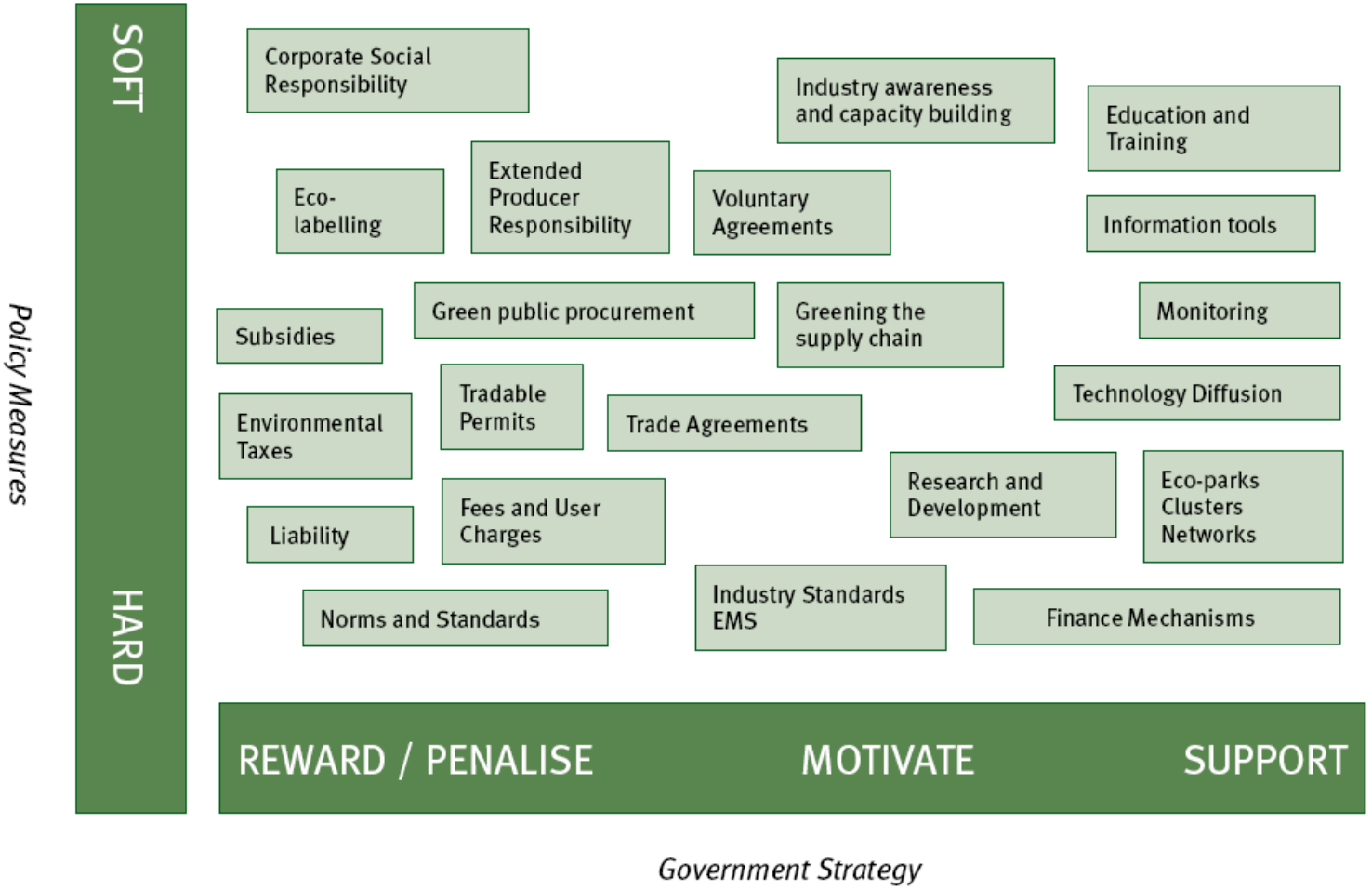
Macro-level (policy/strategy)

Fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies (OECD)

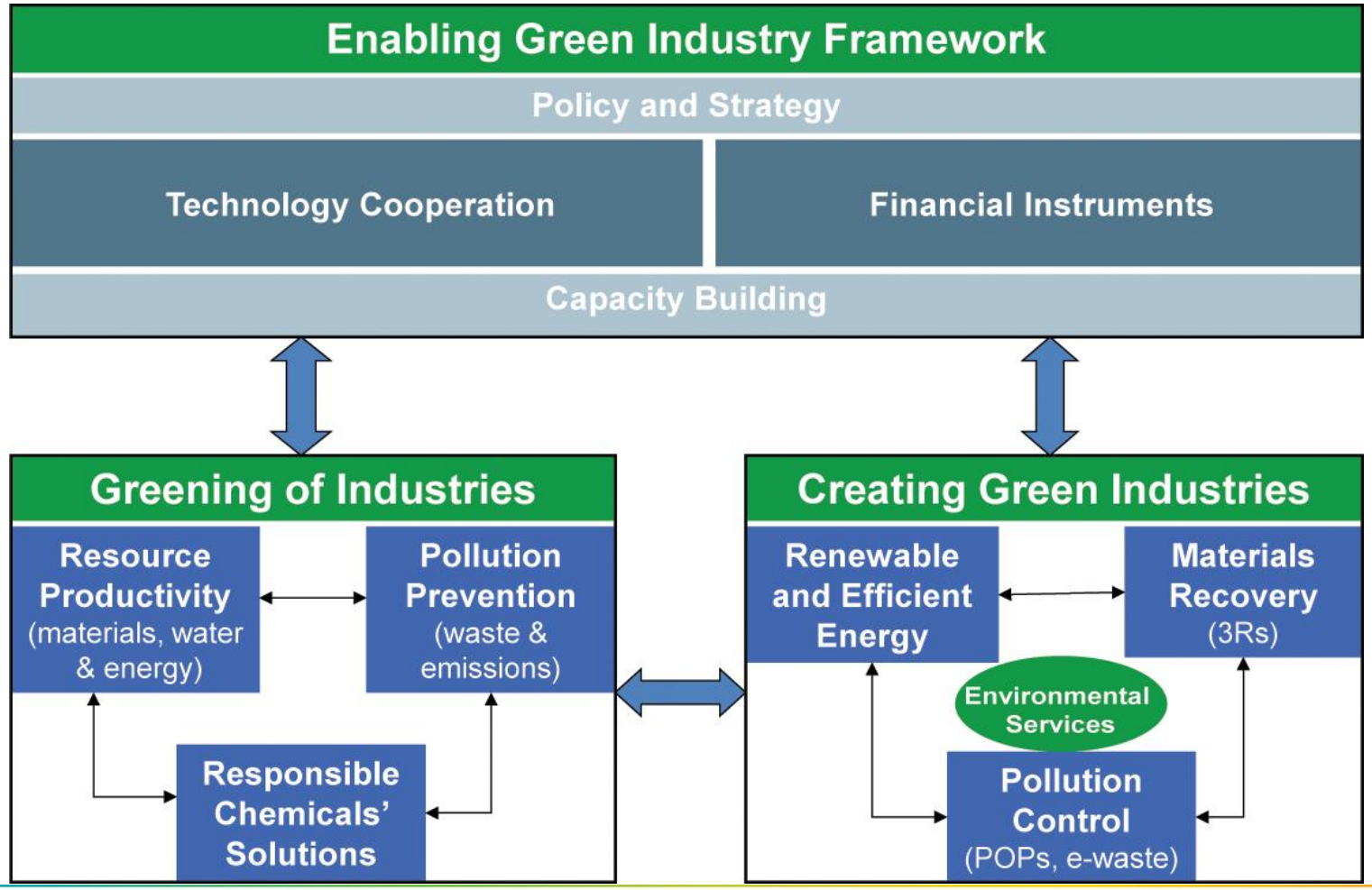
Micro-level (operational/ solutions)

Green Industry is the sector-strategy for realization of meta strategies in manufacturing and related sectors

Green Industry policy instruments



Green Industry Approach



4 Translating concepts into actions

Means of Implementation for Green Economy

RECPnet

GIP GREEN INDUSTRY PLATFORM

SUSTAINABLE ENERGY FOR ALL

PAGE

UNIDO/UN global instruments for Post-2015

Global Network of Regional Sustainable Energy Centres

CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

GAHP
GLOBAL ALLIANCE ON HEALTH AND POLLUTION

All supported by the EU and its Member States

Partnership for Action on Green Economy

PAGE

Vision

- Provide targeted support that will enable countries to transition to socially inclusive green economies

Activities

- Provide springboard for action on commitments made at the Rio+20 Summit.
- Harness expertise and ensure coordinated response to countries' needs.
- Create an enabling environment and strengthen the capacity of Governments in their transition to a green economy.

Impact

- Selection of 30 pilot countries for 7 years (2013-2020)
- Azerbaijan as PAGE Exchange country

UNEP
International Labour Organization
UNIDO UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
unitar United Nations Institute for Training and Research
UNDP Empowered lives. Resilient nations.

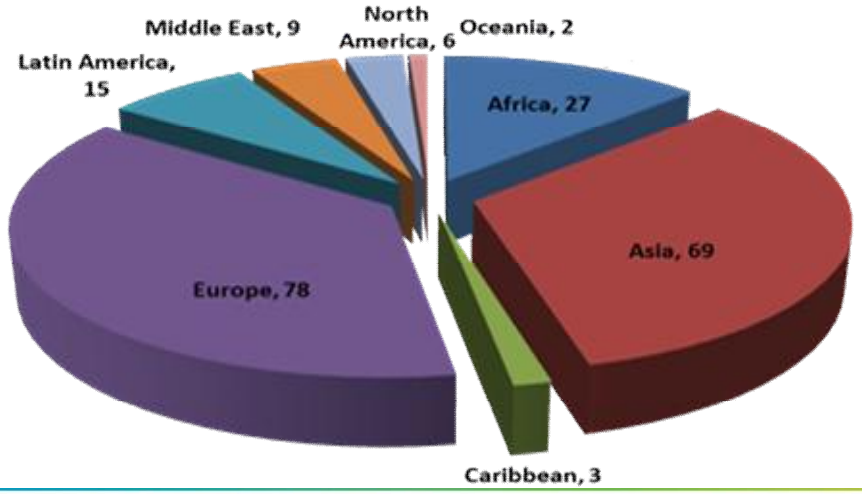
Green Industry Platform

Objective: Mainstreaming of social and environmental considerations into the operations of enterprises in all countries and regions through the more efficient use of energy and raw materials, innovative practices and applications of new green technologies.

GIP GREEN INDUSTRY PLATFORM

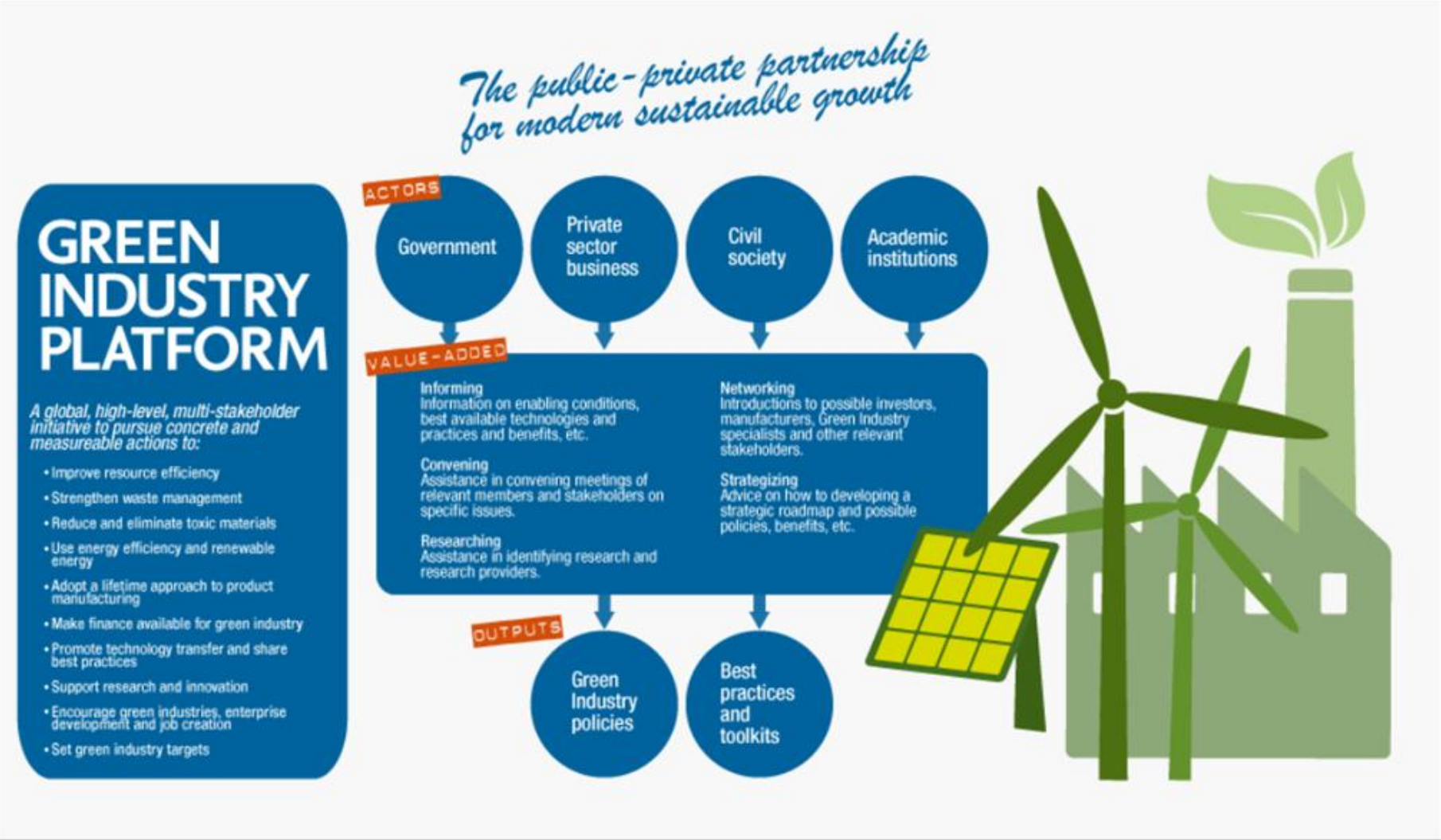
UNIDO UNEP

215 {
- 30 Governments
- 105 Businesses
- 74 Int'l, Business, Civil Society Organizations



Belarus, Denmark, France, Netherlands, Poland, Sweden, Ukraine + EC and CSOs

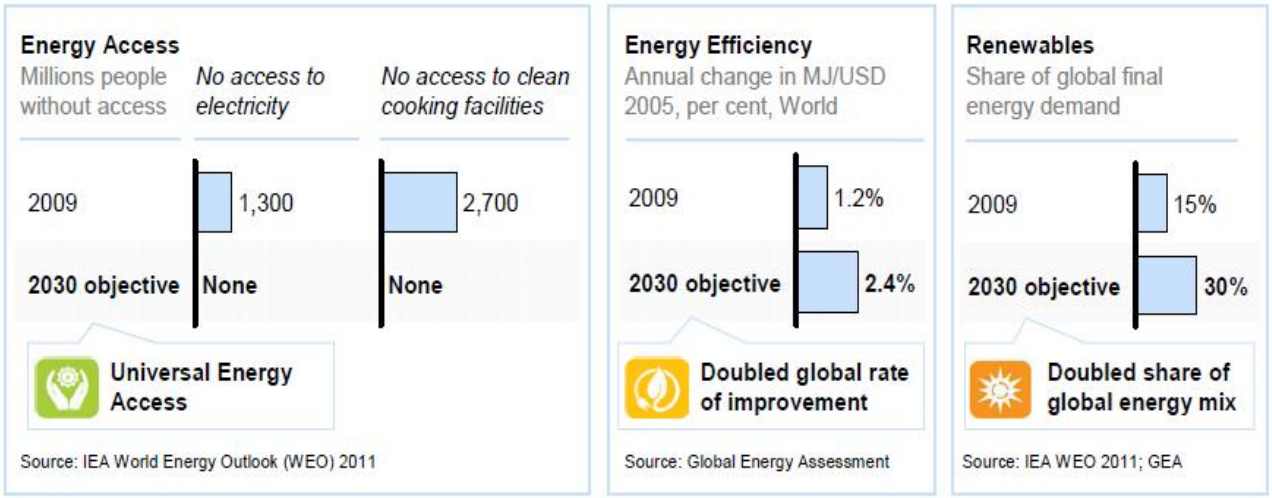
www.greenindustryplatform.org



4th Green Industry Conference: “Green Industry for Sustainable Cities”, Ulsan June 2016

Sustainable Energy for All

SUSTAINABLE ENERGY FOR ALL



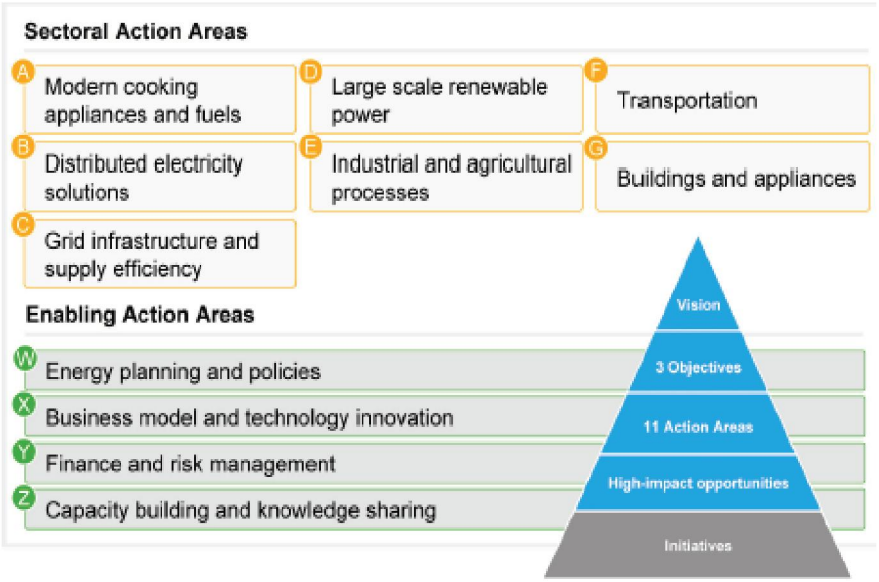
Now: SDG 7

- 1 billion beneficiaries, by 2015: 200 million access to modern electricity, 400 million clean cooking & heating)
- $50+ billion commitments (public and private)
- ~80 countries have opted-in and 118 RE policy targets
- 50 of High Impact Opportunities

http://www.se4all.org/

SE4ALL: framework andaction areas

SUSTAINABLE ENERGY FOR ALL



Not exhaustive	Public Sector	Private Sector	Civil Society
Stakeholder group includes:	*Host and donor governments, public institutions, multilaterals*	*Businesses, banks, investors*	*NGOs, academia*
Policies, planning, regulation and institutions	Establish a supportive environment for investment Define requirements for products or firms Develop institutional capacity to implement policy change Adopt standards and targets across levels of government	Identify required changes in policies and regulation to spur investment Engage in advocacy to support change Provide technical input to regulators Develop relevant international standards	Identify and advocate policies that support the objectives of Sustainable Energy for All Develop networks to spread best practices Monitor policy performance and provide feedback
Technology innovation	Incentivise innovation Provide sufficient public support for early-stage R&D Identify and disseminate existing and new best practices	Invest in industrial R&D, training, and demonstration facilities Develop technology solutions	Build R&D and human capacity through universities and training centres
Finance	Deploy public funds to reduce risk and maximise commercial investments Support a variety of solutions through a portfolio approach Facilitate the engagement of local and global financial institutions	Develop expertise on sustainable energy businesses and innovative financial solutions Invest in sustainable energy solutions, and social and philanthropic projects	Develop community-based business models to deliver sustainable energy alternatives Mobilise philanthropic capital for social enterprise models Monitor government use of funds and commitments
Implementation capacity and end-user demand	Build public capacity Initiate pilot projects Stimulate end-user demand for sustainable energy technologies Monitor and provide transparent reporting of results	Apply objectives to core operations, products, services and own value chain Innovate and invest in delivery models	Train energy entrepreneurs Educate end users about benefits of sustainable energy Develop models for social innovation in the energy sector Monitor progress within focus areas and towards overall objectives

Climate Technology Center & Network

CTCN CLIMATE TECHNOLOGY CENTRE & NETWORK

"Stimulating technology cooperation and enhance the development and transfer of technologies to developing country Parties at their request (…)"

Activities:

- Technical assistance to developing countries to enhance transfer of climate technologies
- Provide and share information and knowledge on climate technologies
- Foster collaboration and networking on climate technologies

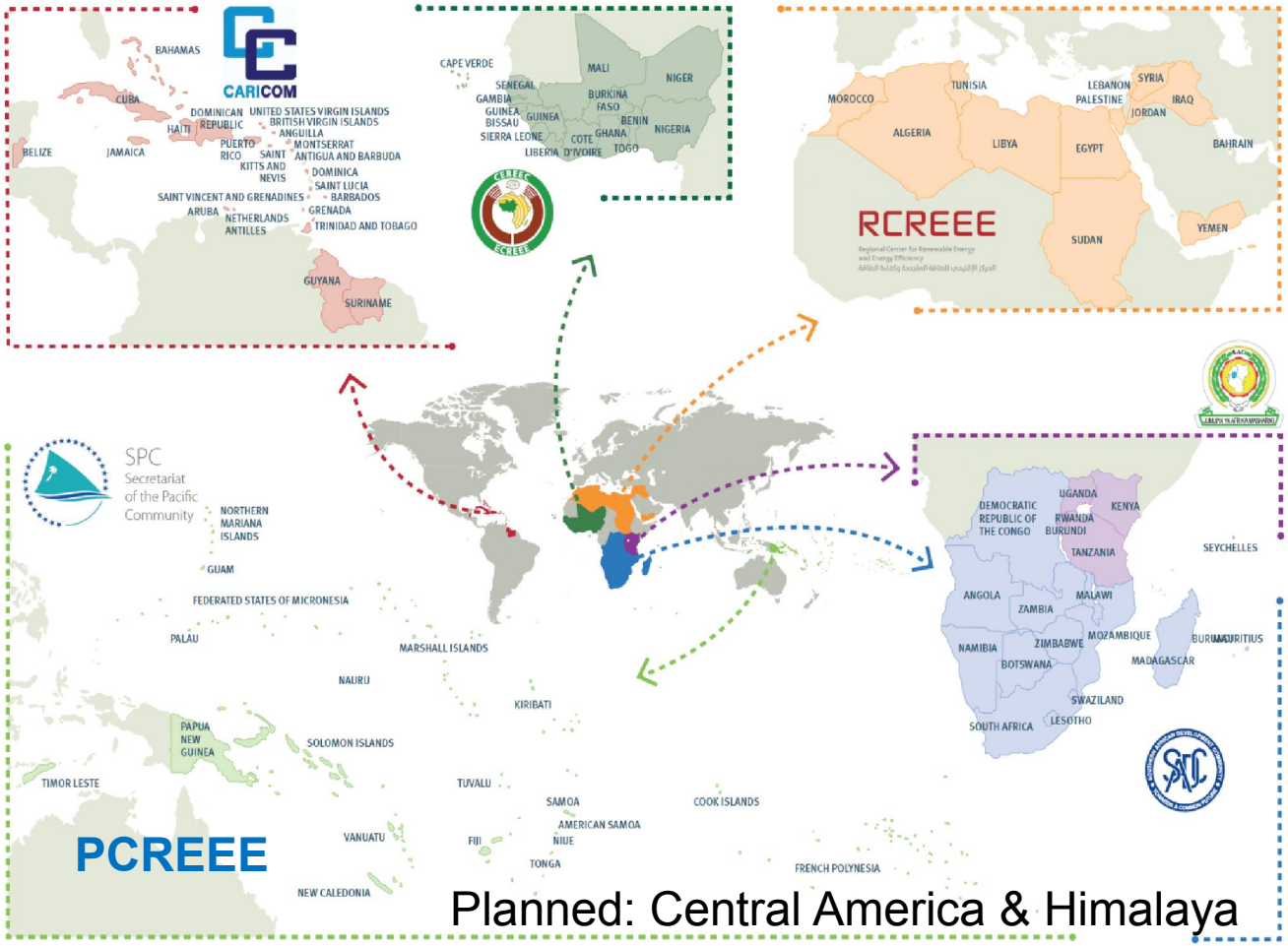
⇒ 215 institutions network members (101 NGOs, NPOs and academia)

⇒ 153 NDEs and 143 request until now

http://ctc-n.org/

Sustainable Centres: Overview and Functions

Global Network of Regional Sustainable Energy Centres



Planned: Central America & Himalaya

Service Areas:

1. Tailored Policy Frameworks and Quality Standards
2. Facilitate Capacity building & Training
3. Advocacy, Awareness Raising, KM and Networking
4. Implementation of RE and EE project

Model: ***http://www.ecreee.org/***

Resource Efficient and Cleaner Production

Vision: Preventive environmental strategies applied to processes, products and services to increase efficiency and reduce risks to humans and the environment

~50 National Cleaner Production Centres (NCPCs) since 1994

5 service areas:

1. Awareness building and information, dissemination
2. Professional training
3. In plant assessments/ technical assistance
4. Policy advice
5. Transfer of Environmentally Sound Technologies

UNEP

http://www.recpnet.org

Global Alliance for Health & Pollution

Vision: world where the health of present and future generations, especially children and pregnant women, is safe from toxic pollution.

Source: GAHP 2014

Activities:

- Advocates for solutions that address pollution broadly – indoor and outdoor air, wastewater, and contaminated soils and water;
- Initiates activities that reduce adverse health impacts caused by contaminated sites;
- Works to help actively polluting small-scale industries and activities move to cleaner production;
- Measures performance based on health and economic outcomes.

http://www.gahp.net/new/

5 Green Economy success stories

Green Industry: Flagship Programmes

Resource Efficiency	Water	Energy	Chemicals Management
Resource Efficiency & Cleaner Production (RECP)	Transfer of Env. Sound Technologies (TEST)	Industrial Energy Efficiency: EMS & System Optimization	Persistent Organic Pollutants (POPs) Phase-out
Environmental Management Standards	Mercury Programme	Renewable Rural Energy for productive use	Ozone Depleting Substances (ODS) Phase-out
Corporate Social Responsibility – REAP 26000	Large Marine Ecosystems (LME) Rehabilitation	Low Carbon Technologies	Chemical Leasing
Climate Change Mitigation and Adaptation			E-waste Management

SWITCHing to sustainability

switchmed

Scope & Concept

- South Mediterranean (9 countries)
- Promoting sustainable consumption & production

Expected Impact

- 3,000 entrepreneurs trained and 30 in depth
- 130-150 industries supported in resource efficiency
- 9 national and regional SCP policy plans
- Community of 4,000 change agents

Leverage

- Local private sector investments (tent. 1/10 ratio)
- Ecosystem for strengthened SCP culture created
- EU also supports Switch Asia and Switch Africa

This project is funded by the European Union

EaPGREEN Partnership for Environment and Growth

Programme carried out with the financial assistance of the European Union

OECD UNEP

Scope & Concept

- Eastern Neighborhood (6 countries)
- Promoting green economies in the Eastern Neighborhood

Expected Impact

- Green growth policy tools and indicators (OECD)
- Strategic/Environmental Impact Assessments (UNECE)
- Planning, sustainable public procurement, organic agriculture (UNEP)
- Resource efficient and cleaner production (UNIDO)

Leverage

- Policy ecosystem for strengthened SCP culture created
- Local private sector investments and finance

UNIDO RECP Demonstration Component

RECP in 6 EaP countries

Human and Institutional Capacity

- Experts Training
- Awareness & Advocacy
- National Coordination Mechanism

Implementation Dissemination and Replication

- Results Monitoring
- Demonstrations (2 batches)
- Regional Replication (4 RECP Clubs)

Technology Support

- Technology Gap Assessment
- Pilot Project Support

Food processing, chemical and construction materials sectors

Activity Stream : Human and Institutional Capacity Development

- Identification, training and coaching of national experts in RECP methods and applications (about 100 experts)
- Awareness raising for RECP opportunities and promotion of its benefits (Primers, Forums)
- National coordination and institutionalization for continued RECP service delivery
- Sharing of knowledge and experience and peer learning among national RECP experts (3 regional meetings)

Enterprise-Level Indicators for Resource Productivity and Pollution Intensity

A Primer for Small and Medium-Sized Enterprises

Good Organization, Management and Governance Practices:

A Primer for Providers of Services in Resource Efficient and Cleaner Production (RECP)

Global Network Resource Efficient and Cleaner Production

RECP net

Activity Stream: Implementation, Dissemination and Replication

- Demonstrate through detailed **RECP assessments** the potential for improved resource productivity and environmental performance (90 SMEs)

- Develop, trial and install mechanism for regional replication and scaling up of RECP in enterprises through training and coaching programme; "**RECP Clubs**" (200 SMEs)

Activity Stream: Technology Support

Development, evaluation and promotion of pilot projects for adaptation and adoption of innovative RECP technologies in target sectors

- **Technology gap assessment / procurement**
- **Publication of sector-specific "Pocket Guides"**
- **Feasibility and investment analysis (Georgia)**
- **Access to finance for SMEs**

Case Study: Asphalt Plant #1, Tbilisi, Georgia

MEASURES	FINANCIAL BENEFITS			ENVIRONMENTAL BEBEFITS	
	Investments [€]	Savings [€/y]	Payback [y]	Energy [MJ/y]	Material [Units/y]
1. Covering the stock of inert material with a waterproof film	2 900	10 530	0.3	1 259 700	
2. Thermal insulation of metal pipes for bitumen supply.	1 800	7 350	0.3	813 480	
3. Application of invertors	5 500	2 550	2.2	138 600	
4. Safety measures	3 000	n/a	n/a		
5. Installation of electronic faucets	350	520	0.8		280 m^3 water
TOTAL	13 550	20 950	0.6	2,211,780	

RECP Component – UNIDO Selected Publications

Available at National web pages:

www.recp.am

www.recpnet.az

www.recp.by

www.recp.ge

www.ncpp.md

www.recpc.kpi.ua/en/projects-en/eap-green

Fighting industrial pollution

This project is funded by the European Union

Scope & Concept

- More than 45 countries worldwide (now 3rd phase)
- Identification and remediation of toxic hot spots

Impact

- 1300+ sites identified, evaluated and categorized
- Global database of hot spots *Worst polluted*
- Awareness raising: around 200 million people at risk
- Local capacity to implement remediation/cleanup interventions
  - Worst case in Ukraine already addressed with EU funds
- National Toxics Action Plans (NTAPs) piloted several countries

Leverage

- Real evidence on global dimension; local buy-in & remediation
- Link with the Global Alliance for Health and Pollution (GAHP)

GAHP GLOBAL ALLIANCE ON HEALTH AND POLLUTION

Key messages

- Opportunities for Green Economy/Industry huge
- Polices & tools can provide adequate frame
- Many Means of Implementation already exist that can translate frameworks into concrete actions and impact
- Concrete approaches show that the quest worthwhile
- Let's work together in partnership to realize these opportunities in your region and beyond

“There is no Plan B because there is no Planet B.”

UN Secretary General Ban Ki-Moon

Florian Iwinjak
Programme and Liaison Officer
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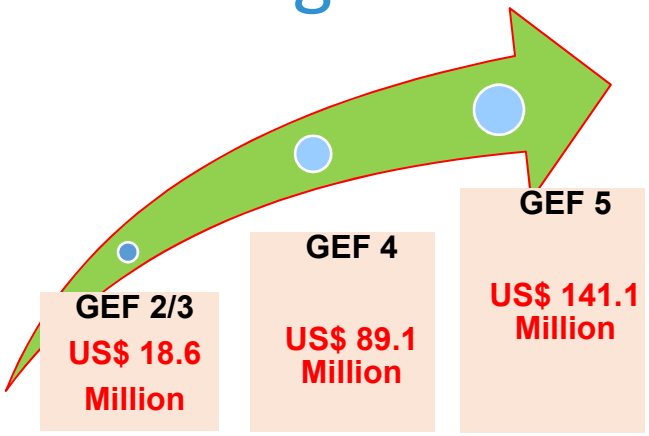
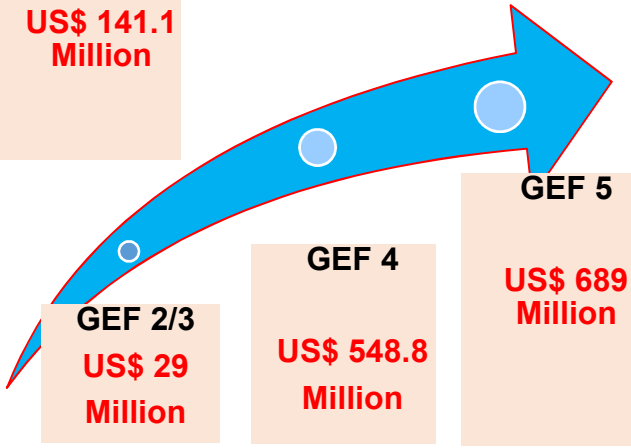
Leverage effect of GEF financing: UNIDO Energy

GEF FUNDING



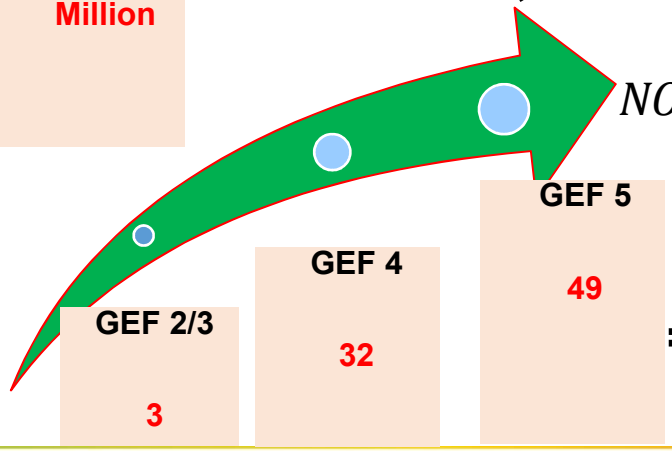
= US$248.86 Million

CO-FINANCING: Local governments and private sector



= US$ 1,267.5 Billion

NO. OF PROJECTS



= 84

GEF Co-funding requirements:
LDCs <50% and non-LDCs <25%

Paris Agreement drives shift to green economy but huge challenges remain

Home | Climate & Environment | News

By James Crisp | EurActiv.com 12/9/2016 6:13 (updated: 6:33)

Ten months after the last day of the UN Climate Change Conference in Paris, work has begun on the shift to a green economy.

[James Crisp]

Print Comments 2 5

This article is part of a special report series: Transition to green economy

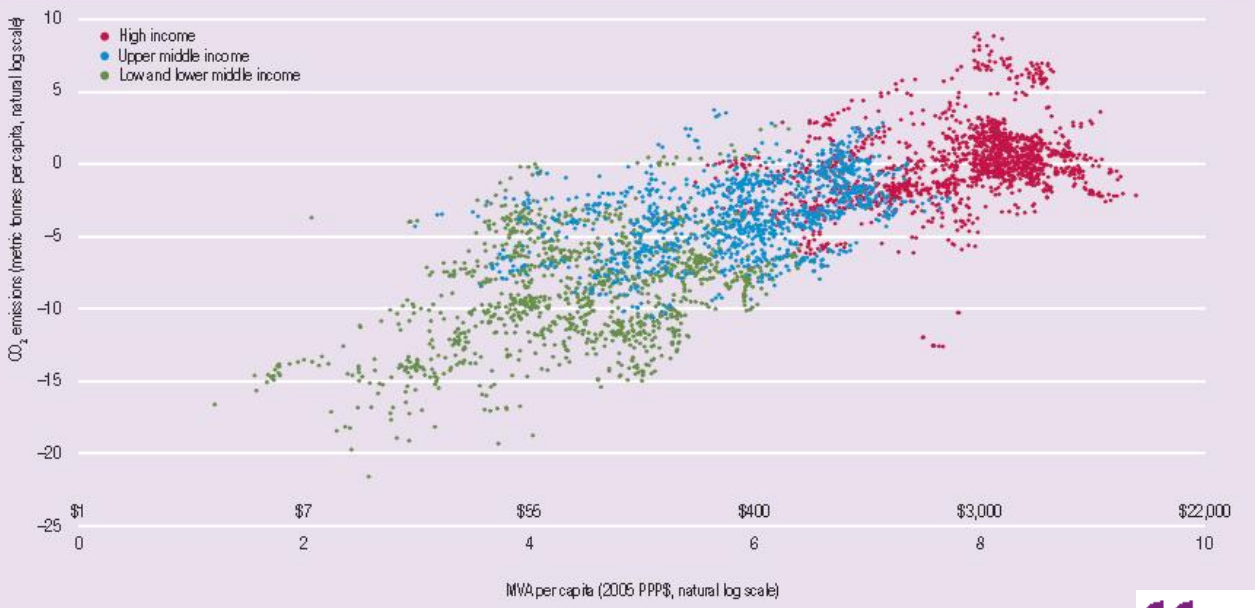
When world leaders in Paris last December agreed on a landmark deal to cap global warming, it was hailed as the starting gun on an irreversible path to a low-carbon economy.

"The transition to a green economy is omnipresent in our diplomacy, in our popular culture, in our evolving industries, led by innovative technologies. What started as a pioneer movement has successfully won the hearts and minds of millions across the world."
***Maroš Šefčovič**, European Commission Vice-President for Energy Union told delegates at the Transition to the Green Economy conference in Bratislava 6-7/9/2016*

But keeping global warming to below two degrees will require nothing less than the complete overhaul of the extraction and consumption-led culture that has held sway since the Industrial Revolution.

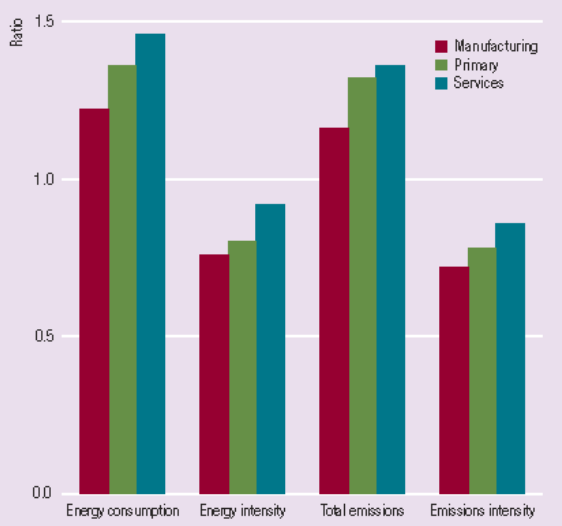
Manufacturing and carbon intensity

Figure 5.1
Manufacturing CO_2 emissions and real manufacturing value added per capita, by country income, 1970–2010



Note: PPP is purchasing power parity; MVA is manufacturing value added. Sample of 70 countries. Income classification based on Annex At, Table At.1.
Source: UNIDO elaboration based on Fuel Combustion Statistics (IEA 2015b), World Development Indicators (World Bank 2015a) and Manufacturing Value Added Database (UNIDO 2014

Figure 5.5
Change of global energy consumption, energy intensity, total emissions and emissions intensity, by sector, 1995 and 2009



Note: Values lower than 1 indicate an emission reducing effect; values higher than 1 indicate an emission increasing effect. The height of each pillar reflects the ratio of an indicator in 2009 to that in 1995. For example, the ratio value of 1.22 for manufacturing energy consumption means a change of 122 percent in the period.
Source: UNIDO elaboration based on Zhong (2015).

"Technological change for environmental sustainability operates mainly through the production process and the production structure

Shift from environmental to ecological economics

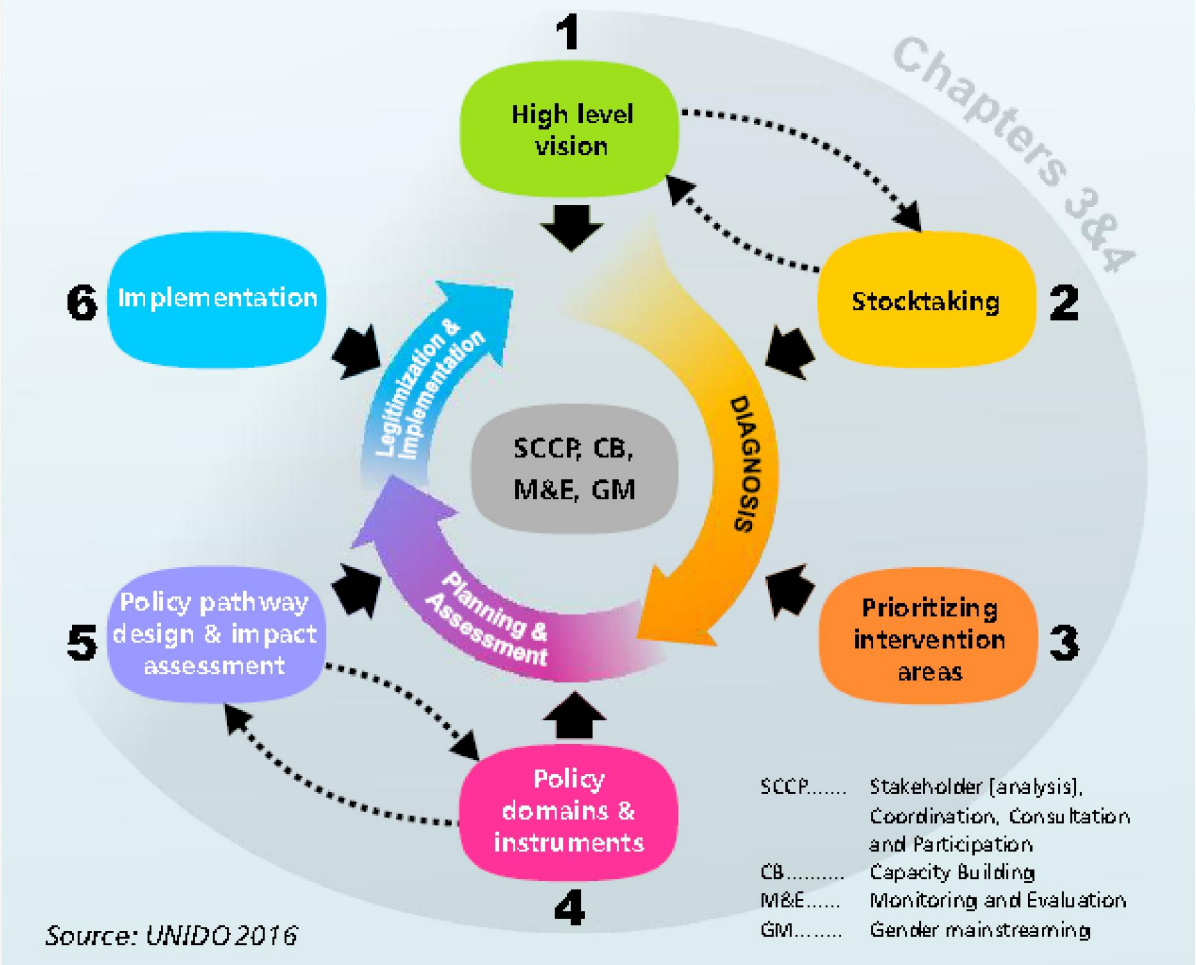
	Criteria for ecological economics	Criteria for environmental and resource economics
1	Optimal scale	Optimal allocation and externalities
2	Priority is sustainability	Priority is efficiency
3	Needs fulfilled and equitable distribution	Optimal welfare or Pareto efficiency
4	Sustainable development, globally and North/South	Sustainable growth in abstract models
5	Growth pessimism and difficult choices	Growth optimism and "win-win" options
6	Unpredictable co-evolution	Deterministic optimization of intertemporal welfare
7	Long-term focus	Short- to medium-term focus
8	Complete, integrative and descriptive	Partial, monodisciplinary and analytical
9	Concrete and specific	Abstract and general
10	Physical and biological indicators	Monetary indicators
11	Systems analysis	External costs and economic valuation
12	Multidimensional evaluation	Cost-benefit analysis
13	Integrated models with cause-effect relationships	Applied general equilibrium models with external costs
14	Bounded individual rationality and uncertainty	Maximization of utility or profit
15	Local communities	Global market and isolated individuals
16	Environmental ethics	Utilitarianism and functionalism

Source: Bergh 2000 (p.9) in PAGE (2016): SGIP

Opportunities based on UNIDO experience

- 75% of GHG related to energy and industry => need and potential to transform to green economy
- Low emission industrial development and resource efficiency offer excellent opportunities for increasing competitiveness of economies and companies.
- There is often a clear business case for switching to lower emission technologies, with payback periods ranging largely from 0.5–5 years, leveraging financial investment.
- Resource productivity has a huge potential in moving towards circular economies and zero carbon societies.
- Many green industry policies, tools, and means of implementation exist that ca drive low carbon competitiveness as part of Nationally Determined Contributions (NDCs) or wider development strategies.

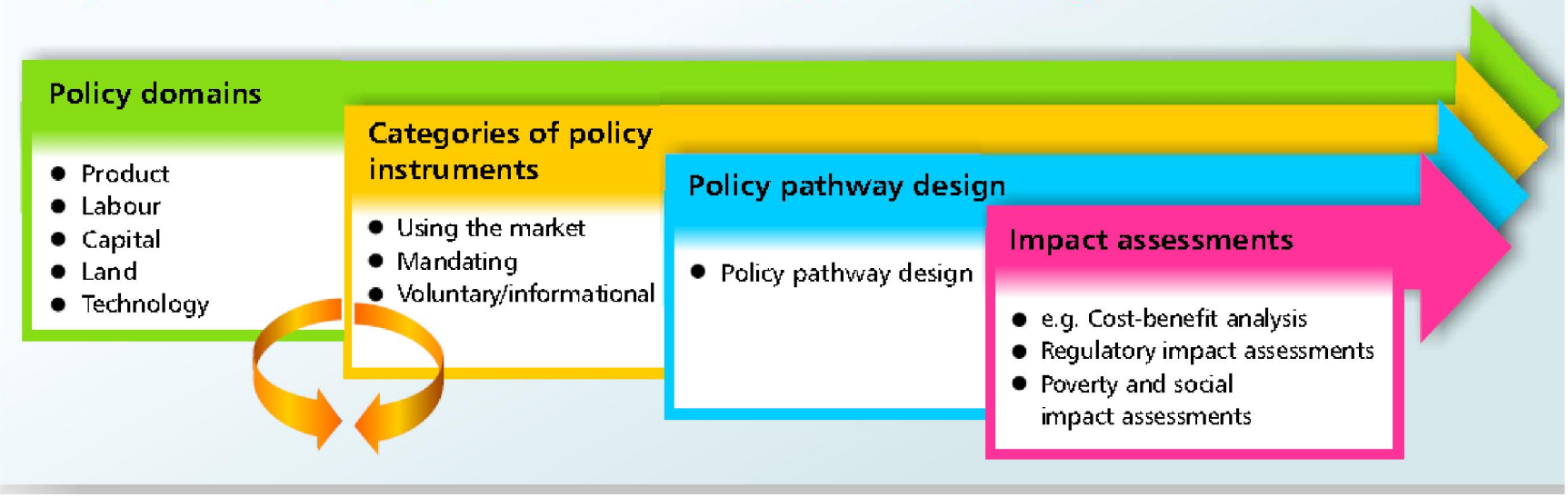
Strategic Green Industry Policy cycle



Essential factors:

- Solid evidence
- Participation,
- Consensus
- Realism
- Env. sustainability

Policy domains and pathways



Measuring progress