



Industrial symbiosis in the context of resource efficiency



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The International Context

Growing recognition of the important role of industry in accelerating – in sustainable and inclusive manner - economic growth and social development.



Raise industry's share in employment and gross domestic product, by 2030, and **double its share in least developed countries**

Upgrade infrastructure and retrofit industries to make them sustainable, with **increased resource use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes.**

Resource Efficient and Cleaner Production

Resource Efficient and Cleaner Production (RECP) refers to the integrated and continued application of preventive environmental practices and total productivity techniques to processes, products and services.



Davos 2015
20 Years in delivering
RECP services to industry

PRODUCTION EFFICIENCY



ENVIRONMENTAL PROTECTION



SOCIAL ENHANCEMENT



The Complementarity

RECP and Industrial Symbiosis (IS) are complementary strategies for decoupling economic growth from increasing resource use and aggravated environmental impact.

- Avoidance and minimization of waste at enterprise level **reduces the need for recycle or recovery of waste** (costs reduction, increase of enterprise resilience)
- **IS requires constant and (preferable) high quality of waste**, which needs RECP implementation at the source company
- **RECP cannot eliminate all waste** and needs IS

RECP & IS in Practice

- After **reduction** of steam use and maximization of steam generation from waste heat and waste incineration in some **8 key industries in Ulsan**, some had steam excess and others steam deficits. As IS solution a **two-way steam exchange 'highway'** was created to achieve significant energy savings.
- In the **rice milling sector in Vietnam**, RECP is applied to produce maximum amount of clean rice husk, which can be sold as alternative fuel. If then properly burned for heat or power generation the remaining high silica containing slag can be used as one of alternative raw material for cement making.

The Global RECP Network



The network currently has **over 70** members delivering RECP services in **over 60** developing countries. Through RECPnet, knowledge and know-how is exchanged and North-South and South-South cooperation is promoted.

Supported in cooperation with UNEP

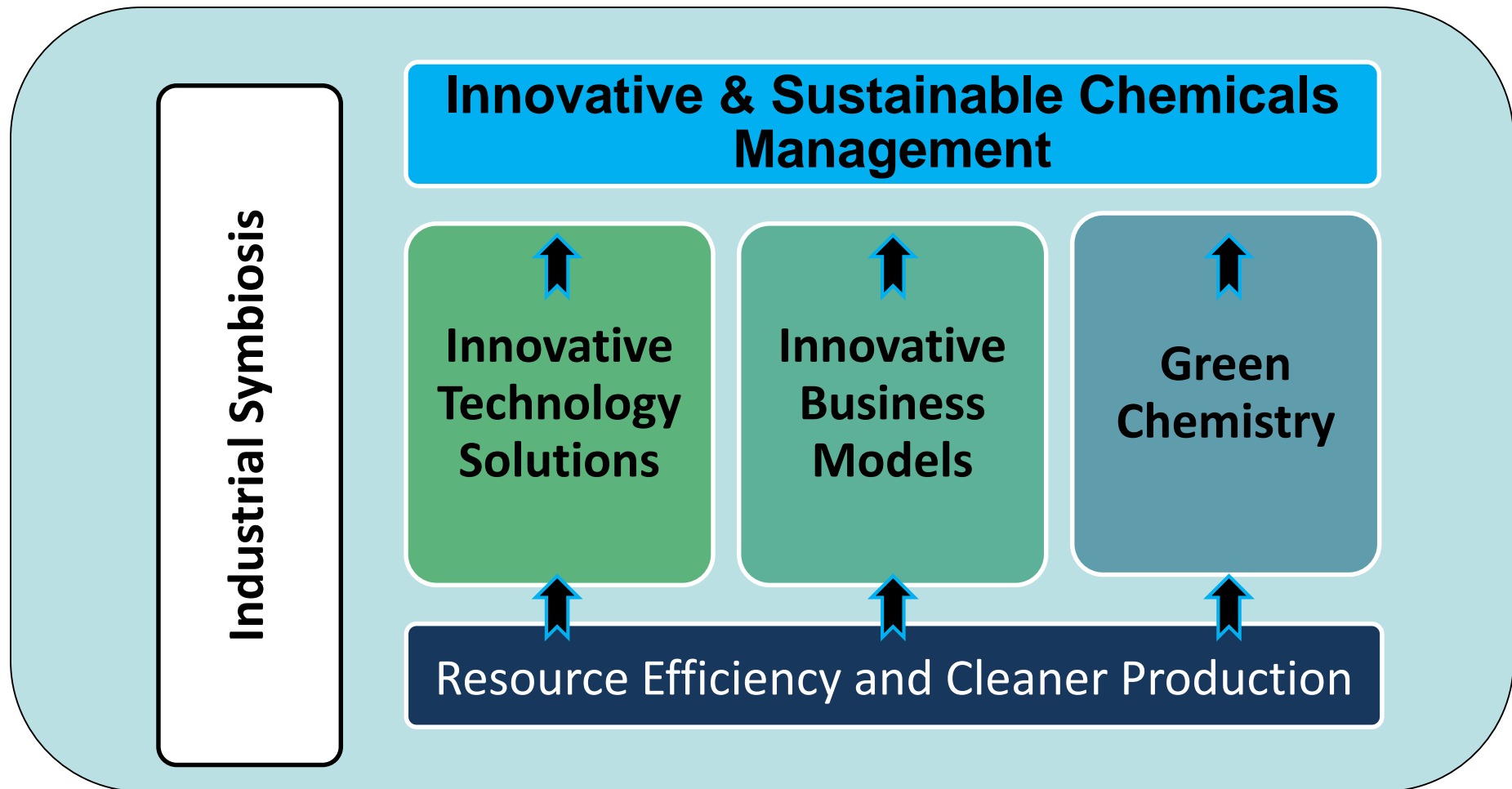
Up-Scaling: Eco-Industrial Parks

An **Eco-Industrial Park** is a community of manufacturing and service businesses located together on a common property. Members seek enhanced environmental, economic and social performance through collaboration in managing environmental and resource issues (Loewe 1997)

- Eco-Industrial Parks is **valid approach for scaling up RECP and SI** in industrial zones in developing countries and emerging economies!
- **Practice** does not yet match ambition
- **Good practice elements exist**, yet need to be brought together and implemented routinely in planning, development and management of industrial zones

* UNIDO's Global Review of Eco-Industrial Parks 2015

Up-Scaling at Sector Level



Partnering for Up-Scaling

Global Networking and Mainstreaming

Demonstration
&
Capacity
Building

Market
Change
in
Selected
Sectors

Policy Advice
&
Advocacy

Innovative
Business
Models
&
Financing



Thank You For Your Attention!



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