



Mobilizing SMEs to “Green”: experiences and lessons with Resource Efficient and Cleaner Production

René VAN BERKEL

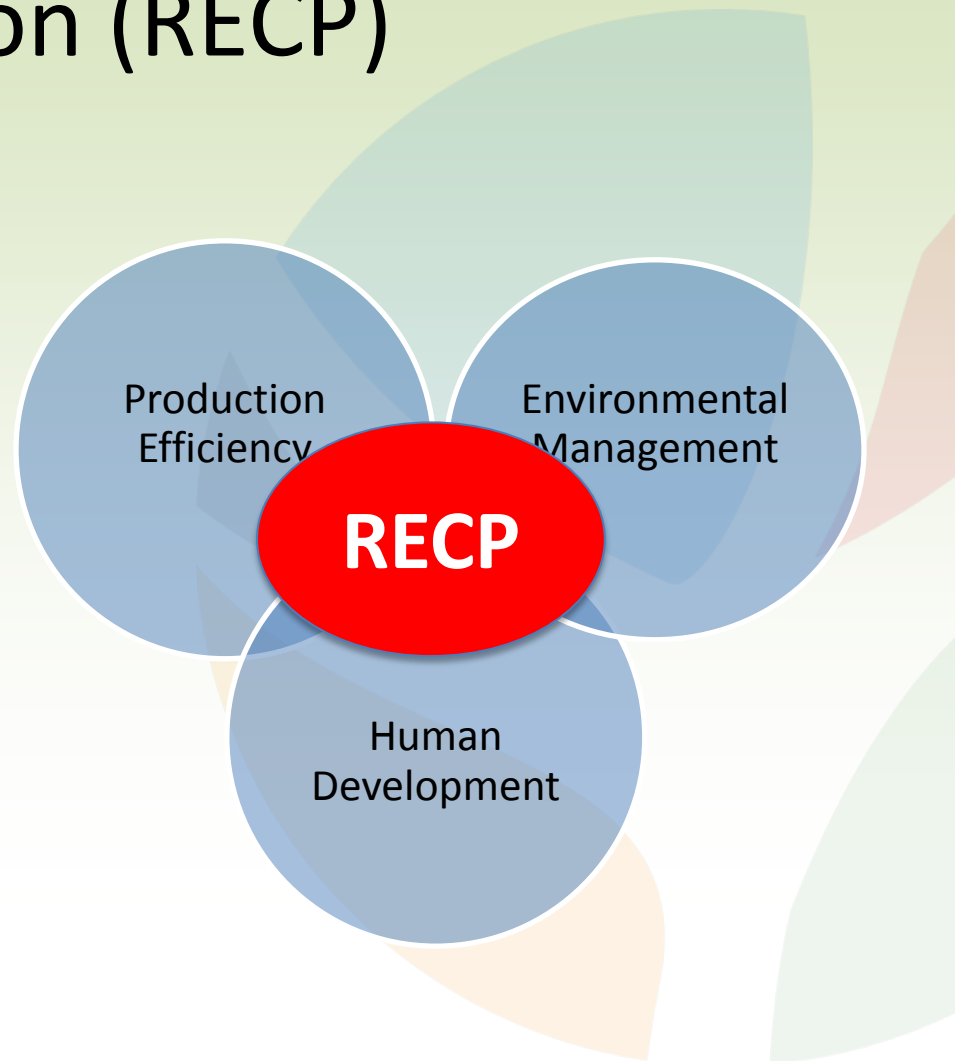
United Nations Industrial Development Organization

Kyiv, 12 February 2015



Resource Efficient and Cleaner Production (RECP)

- Applies preventive environmental techniques and total productivity management practices to increase resource productivity and environmental performance of processes, products and services



Low Carbon Context

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



Resource Efficient and Cleaner Production



RECP is the RE*Ci*Pe for putting green economy in practice at enterprise level

- Re*Ci*PE with
 - Ingredients → *'techniques'* or *'practices'*
 - Process → *'continuous improvement'*
 - Outcomes → *'indicators'*

RECP *Techniques*

Good House-keeping

Input Material Change

Better Process Control

Equipment Modification

Resource Efficient & Cleaner Production

Technology Change

Onsite Reuse & Recycling

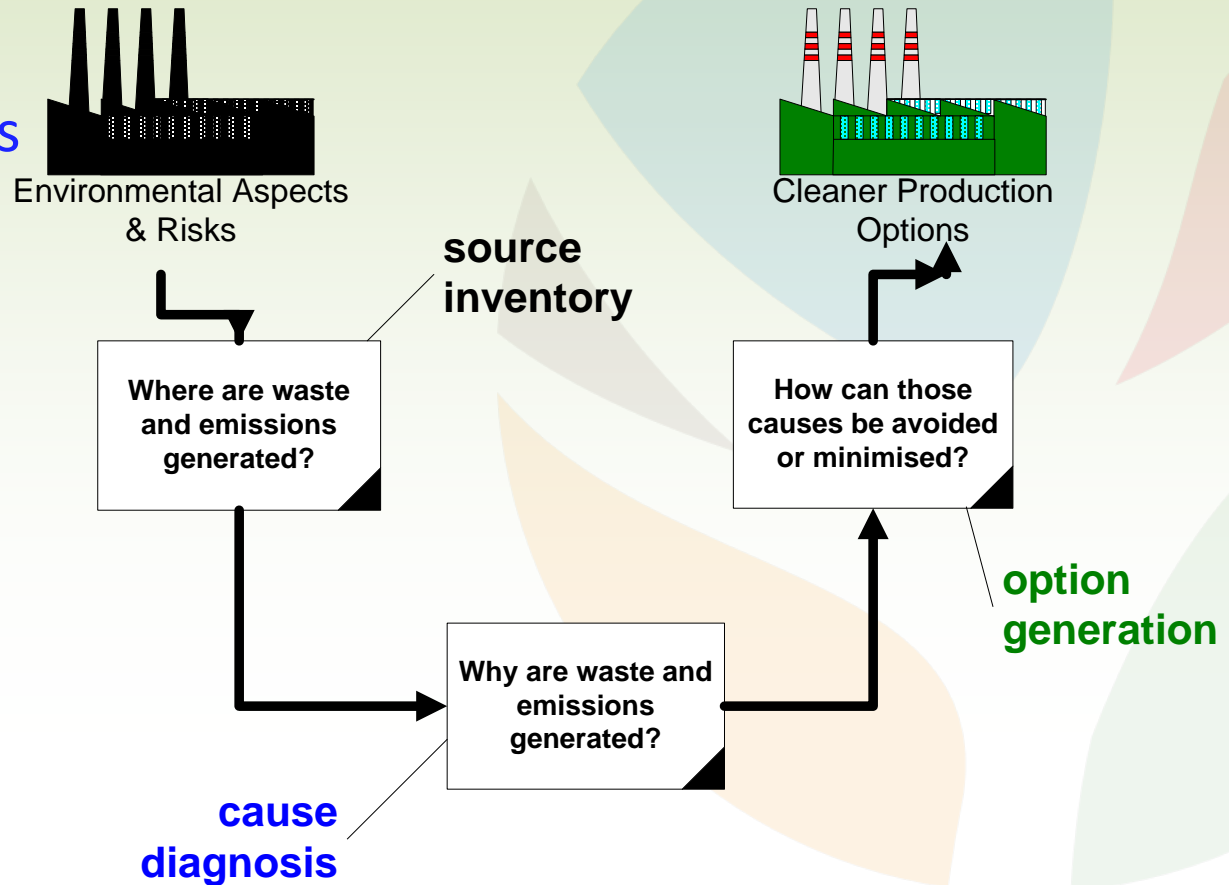
Production of Useful Byproduct

Product Modification

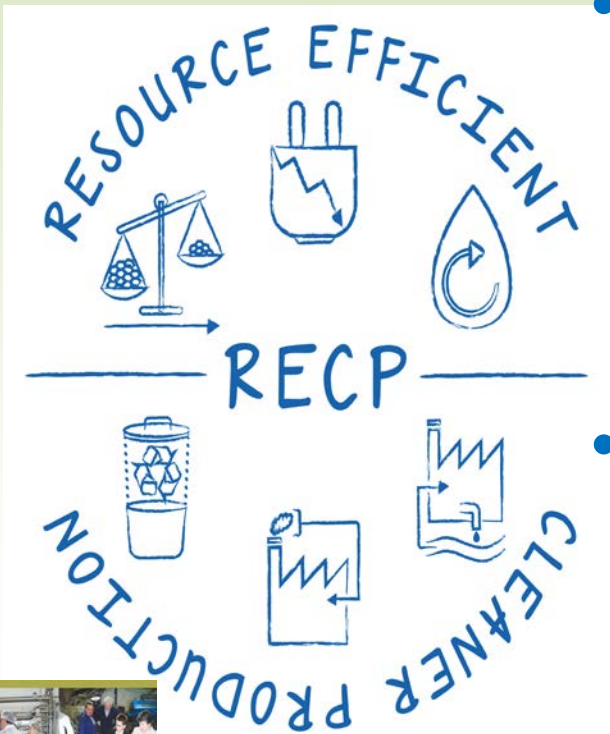


RECP Methodology

Systematic root source and cause analysis guides the identification, evaluation and implementation of RECP opportunities



RECP *Indicators*



- Resource Efficiency

- Productive output per unit of resource consumption

- Total energy use
- Total water use
- Total materials use

- Pollution Intensity

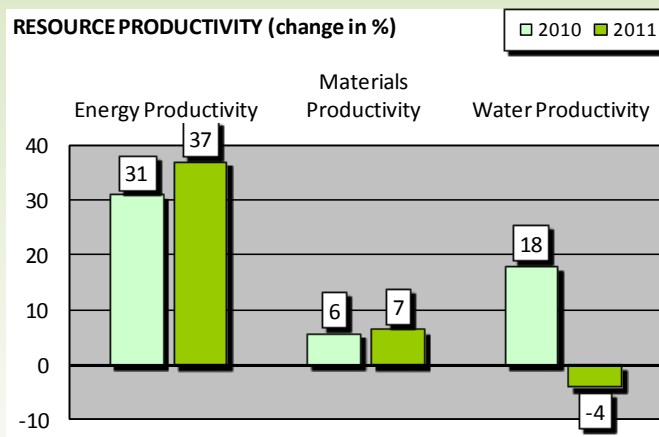
- Waste and emission generation per unit of productive output

- Air emissions
- Waste water volume
- Waste quantity



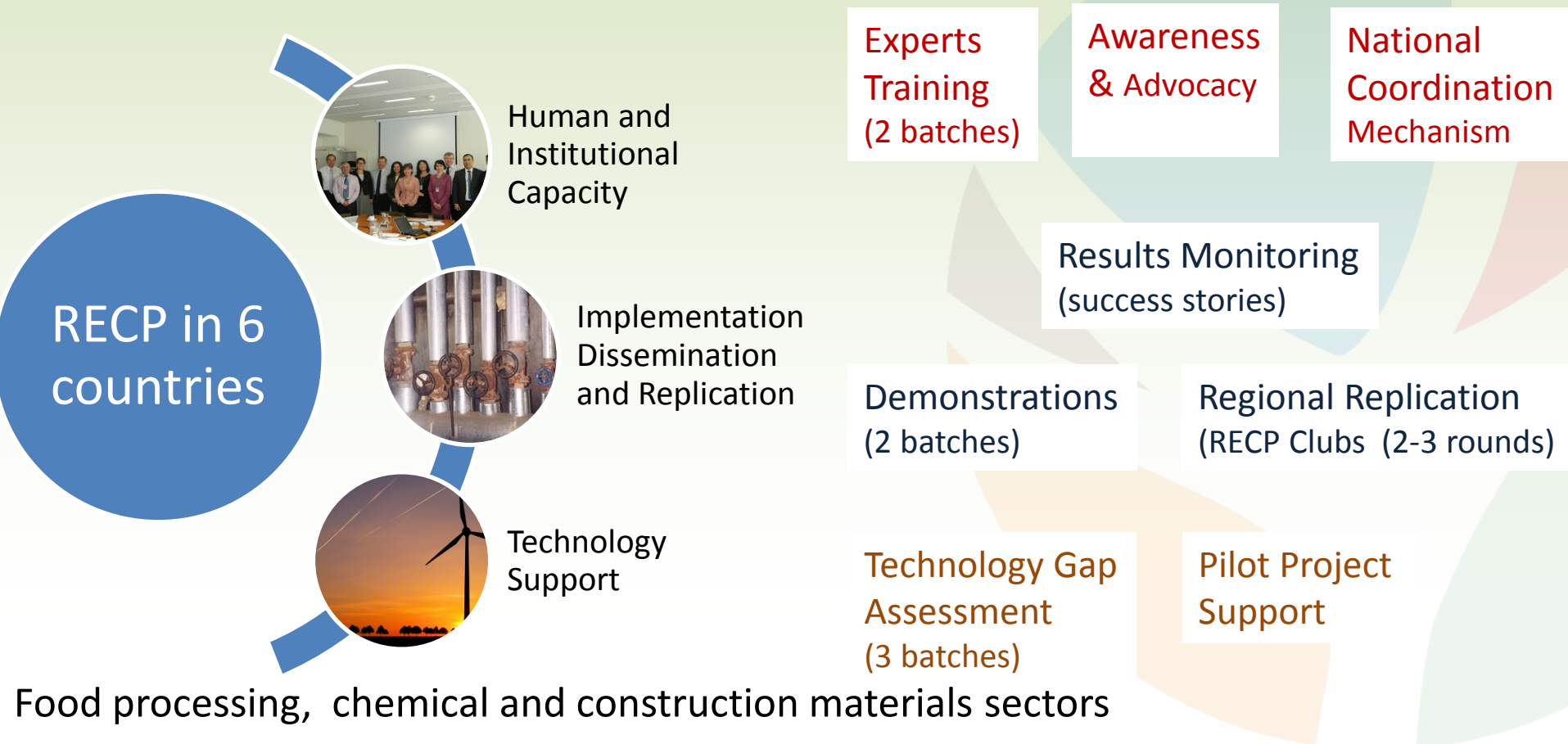
Enterprise-Level Indicators for Resource Productivity and Pollution Intensity
A Primer for Small and Medium-Sized Enterprises

FEC Concrete Producer (Moldova)



| Principal options implemented | Benefits | | | |
|---|----------------|--------------------|--|--|
| | Economic | | Pollution generated | |
| | Investment USD | Cost Saving USD/yr | Resource use | |
| Sub metering of electricity in 5 production Units | 1000 | 25,000 | Reductions in energy use, water use and/or materials use (per annum) | |
| Retiring old air compressor, P=75 kW and installing new efficient air compressor with variable speed P=30kW | 23,000 | | Reduction of electricity consumption* by 219,000 kWh/year | Reductions in waste water, air emissions and/or waste generation (per annum) |
| Replacing 2 electric lifting cranes (P=28kW) with 2 forklifts | N/A | | | |
| Switching to efficient light bulbs from 500W to 125W (end of 2011) | 532 | | | |
| Replacing air compressor for concrete transportation with 2 helical (screw) transporters, P=22kW (end of 2011). | 16,000 | | Improved materials use productivity by 7% (6.900tons) | Reduction in air emissions: 217 t CO ₂ eq. |
| Installation and operation of new production line for concrete rings | N/A | 68 000 | | |

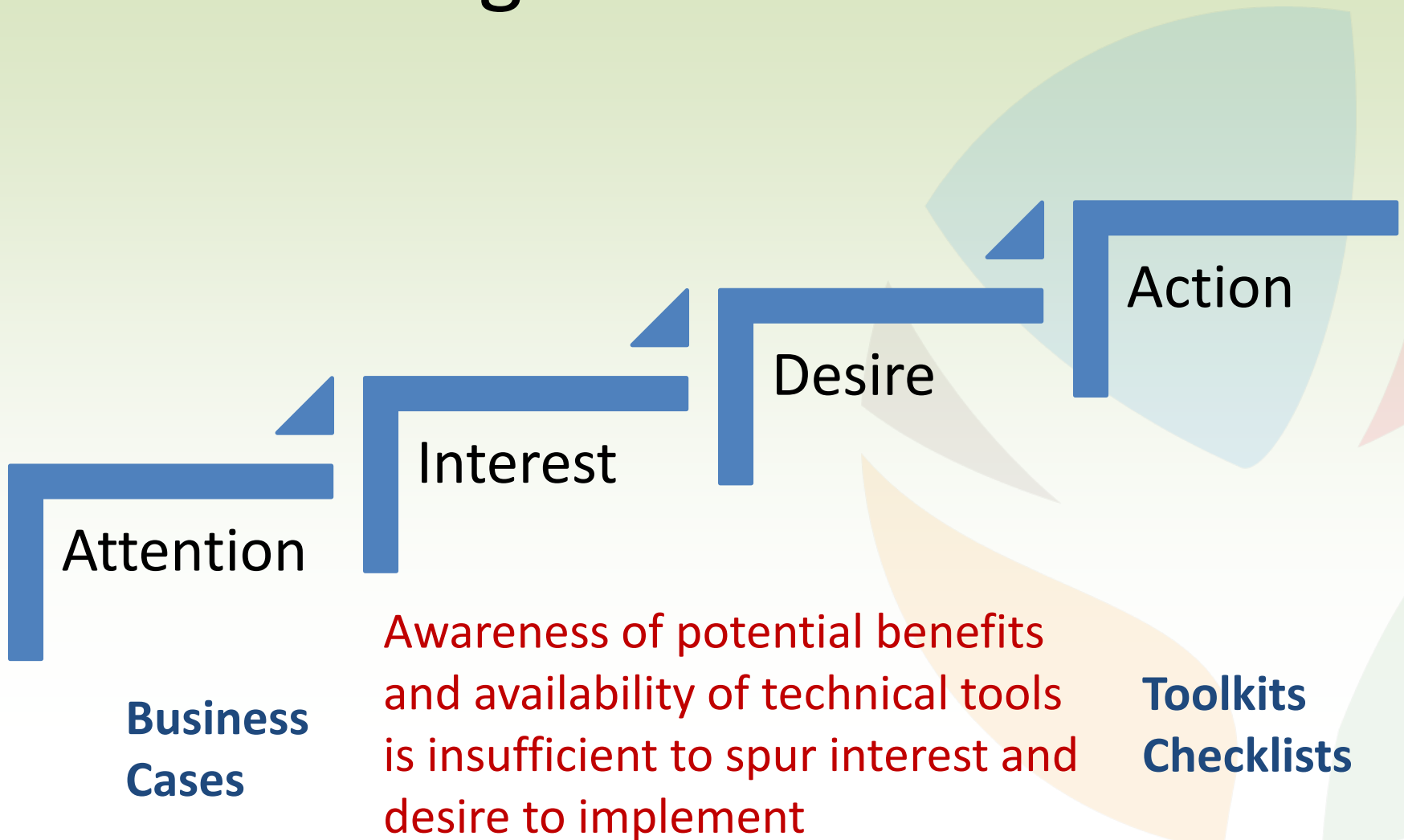
EaP GREEN: RECP Demonstration Component



Messages for Enterprises

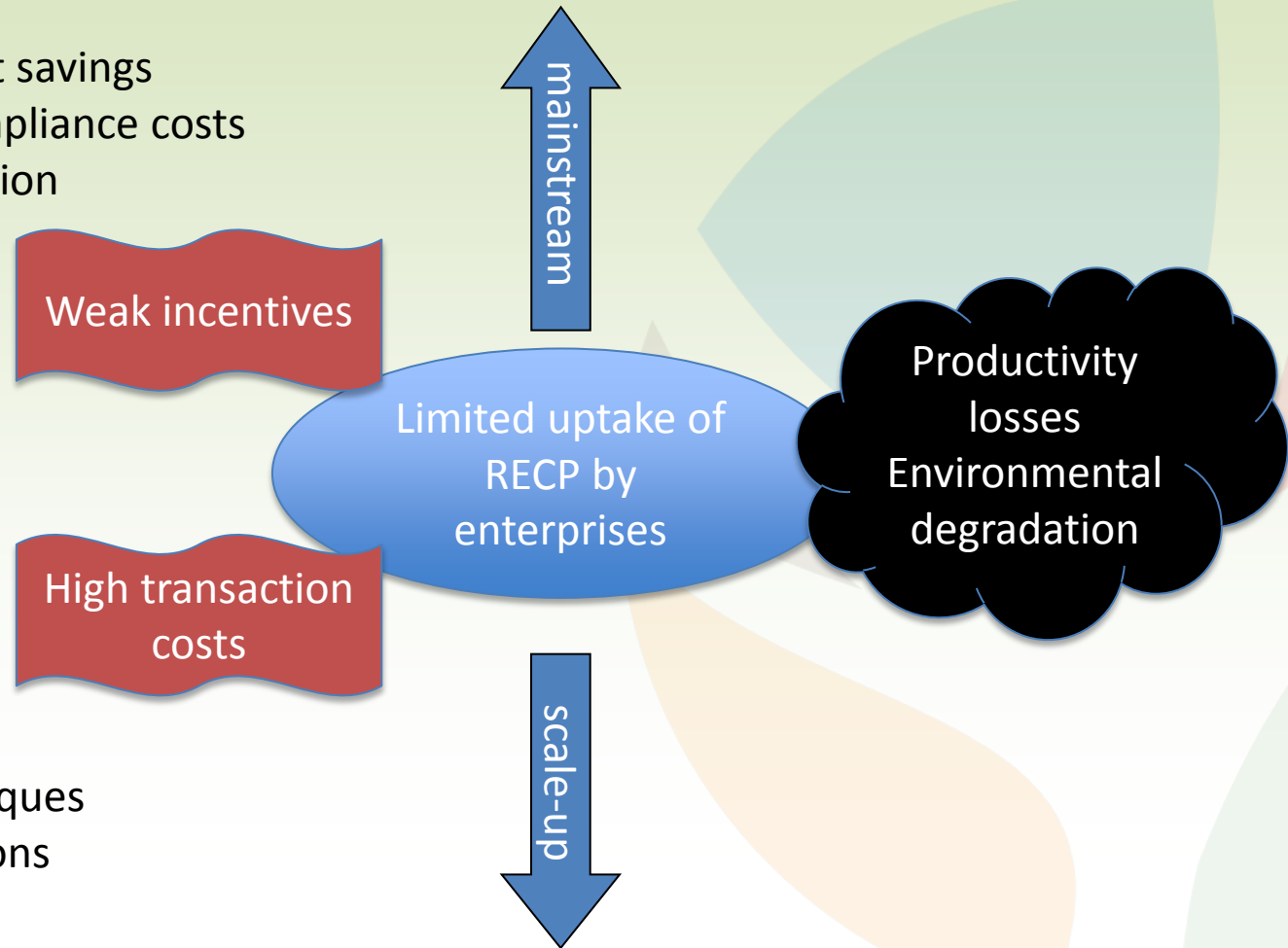
- RECP generally makes good business sense
 - Operational costs savings, productivity and quality improvements and reduction of environmental impacts
- Yet
 - Site specific assessment needed to determine most appropriate solutions
 - Realization of benefits contingent on :
 - Entrepreneurial capacities
 - Policy and regulatory certainty
 - Market expectations and acceptance
 - Real costs for energy, water, waste, waste water and compliance

Challenges for Information



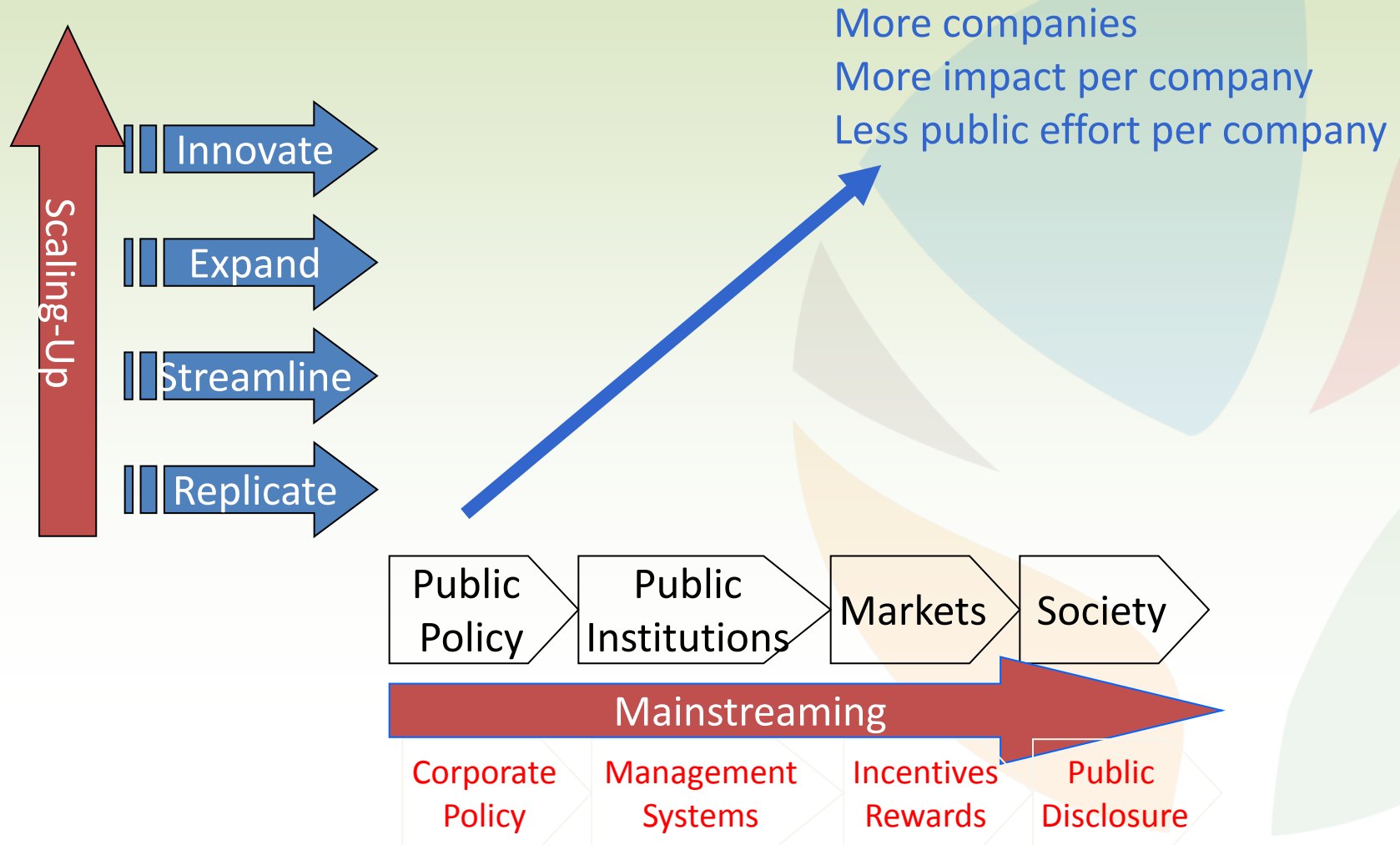
Analyzing the Challenges

1. Limited operational cost savings
2. Low environmental compliance costs
3. Limited market recognition

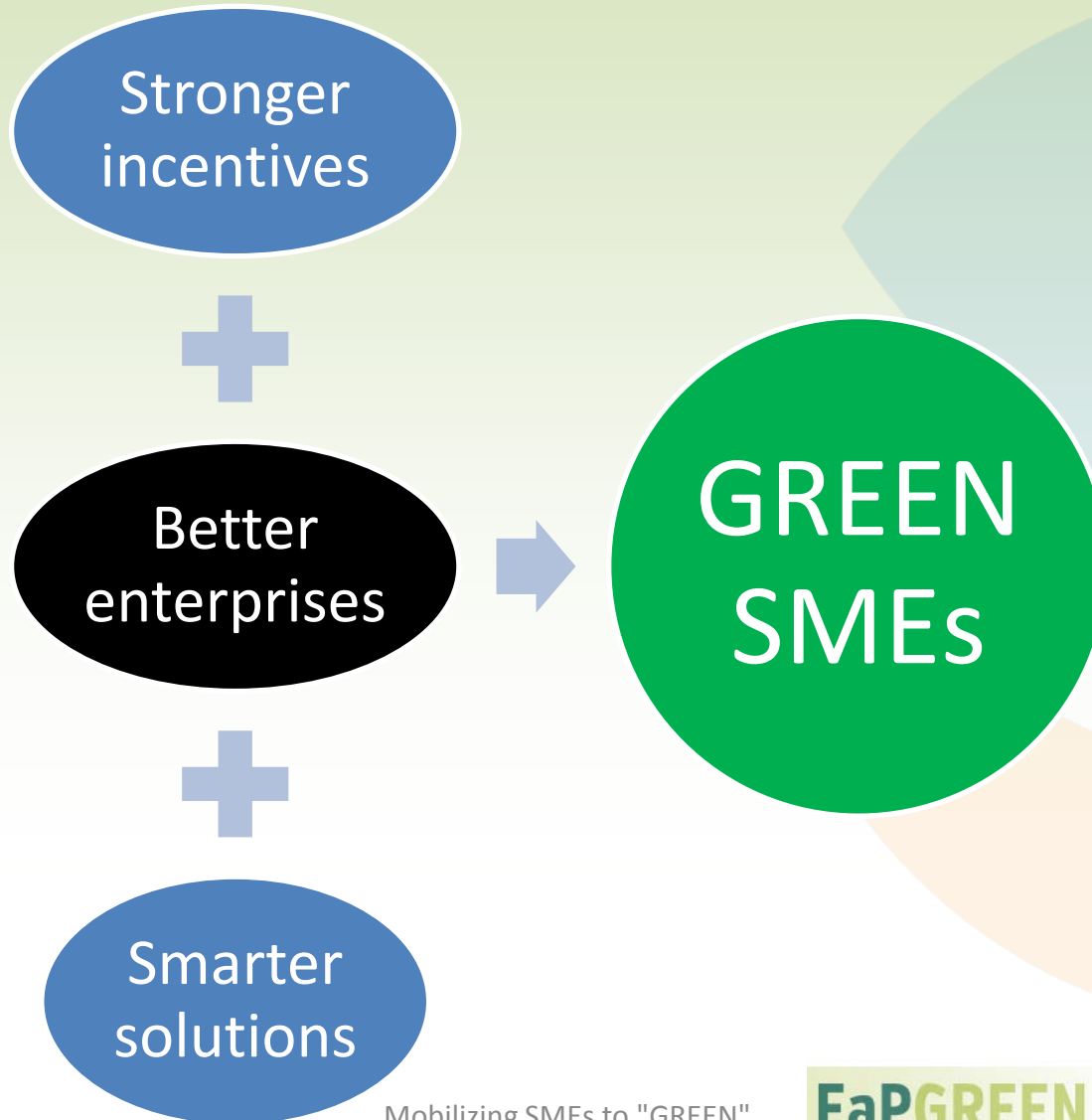


1. Accessibility of advice
2. Applicability of techniques
3. Affordability of solutions

Towards a Framework



Policy Message



Policy Message: Incentivize

- Make it urgent for SMEs to address their resource, environment and climate issues
 - Set up schemes that recognize and reward good performance
 - Ensure full compliance and set long term goals
 - Use fiscal and pricing instruments that value natural assets

Good Practice Examples: Recognition



EcoMark Thailand engaged
~17000 industries within 3
years of its launch



Between 1998 and 2012 OekoPlan Vienna
engaged >1000 enterprises that imple-
mented >11,000 actions, achieving
cumulative savings exceeding 120 MEUR
330 kt CO₂ and 125kt waste

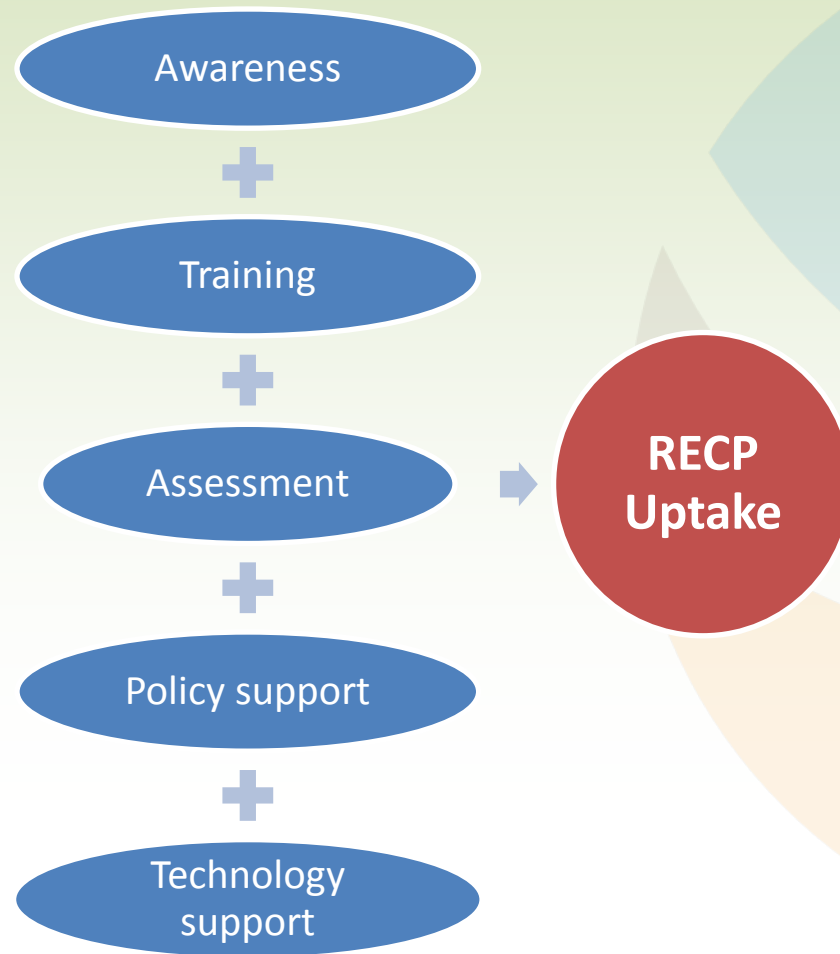
Policy Message: Ease

- Make it easier for SMEs to adapt and adopt green techniques and practices
 - Improve the Accessibility
 - Improve the Applicability
 - Improve the Affordability
- For information, advisory services, techniques and finance



Good Practice Example

RECP Service Providers



Closing Remarks

- Good opportunities exist for SMEs to green their existing business through RECP
- Greening policies to focus on incentivizing into RECP and easing its adoption
- Good practice examples exist





Thank You

René VAN BERKEL
Unit Chief, Industrial
Resource Efficiency
UNIDO

[r.vanberkel\(at\)unido.org](mailto:r.vanberkel@unido.org)
www.unido.org/cp
www.recpnet.org



The Regional RECP Demonstration Project is co-funded by Government of Slovenia, Development Bank of Austria and UNIDO

