

Industrial symbiosis and ecoindustrial parks: best practices in the European Union

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Developing Industrial Areas

Sofies Key Expert in Industrial Ecology: Dr. Ing. Guillaume Massard

Fields of expertise

- Industrial ecology
- Resource efficiency
- Waste management
- Eco-industrial parks development and planning
- Regional development

Key accomplishments

- National expert for the management of industrial estate for the Swiss government (policy and technical issues)
- Developer of tools for management of material flows
- Training and services for industrial park at the international scale





Developing Industrial Areas

Planning of industrial areas and economic activities

Identification, assessment and set up of RECP strategies and industrial symbiosis

Place promotion and regional development

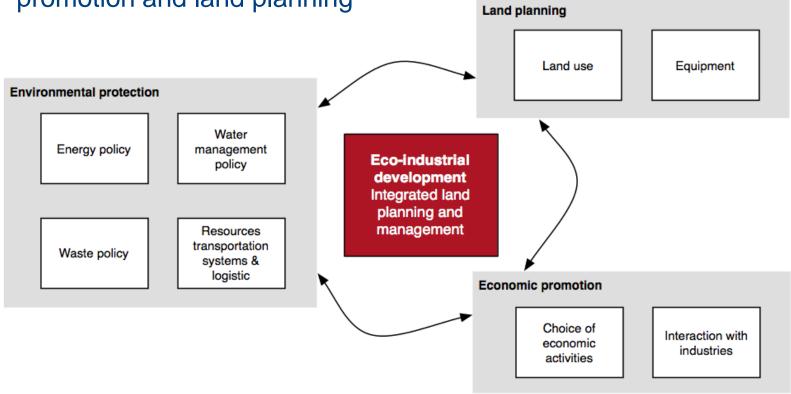
Setting up of resource, waste and services centers



Industrial symbiosis and eco-industrial development

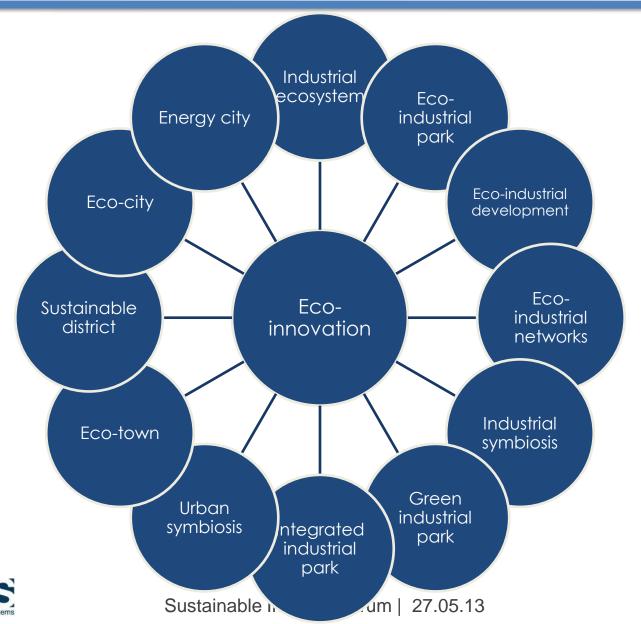
✓ Industrial symbiosis involve economic activities in a collective approach for the reduction of environmental impact and costs

✓ Eco-industrial development considers IS and sustainable resources management as an opportunity for economic promotion and land planning

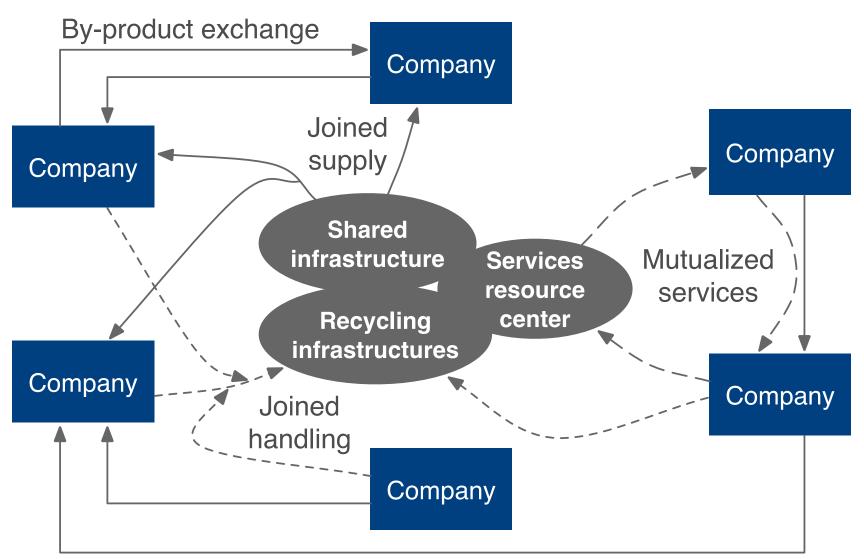




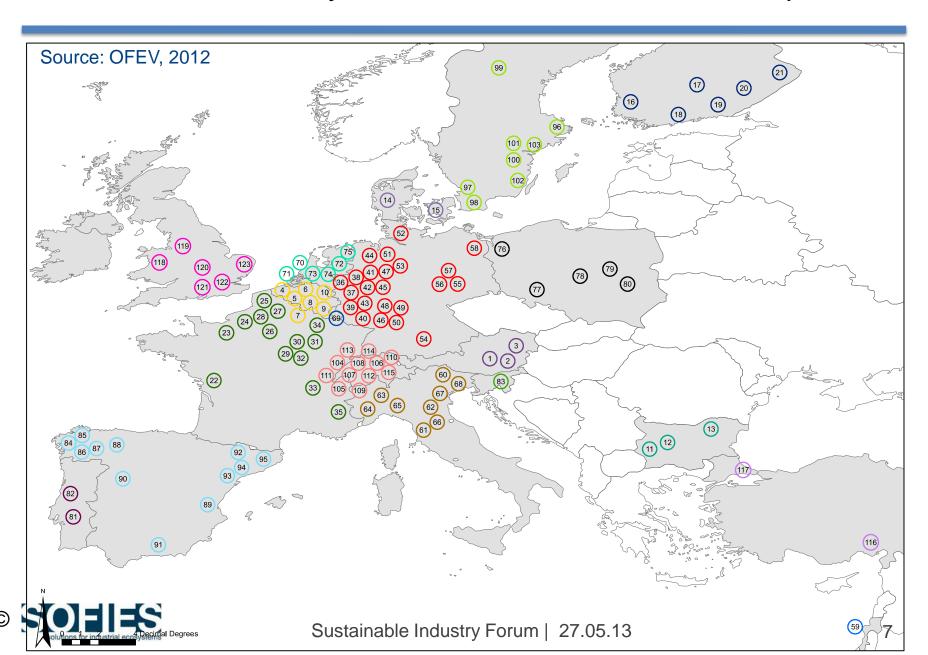
Industrial symbiosis and eco-industrial development



Industrial symbiosis and eco-industrial development



International survey on eco-innovation in industrial parks



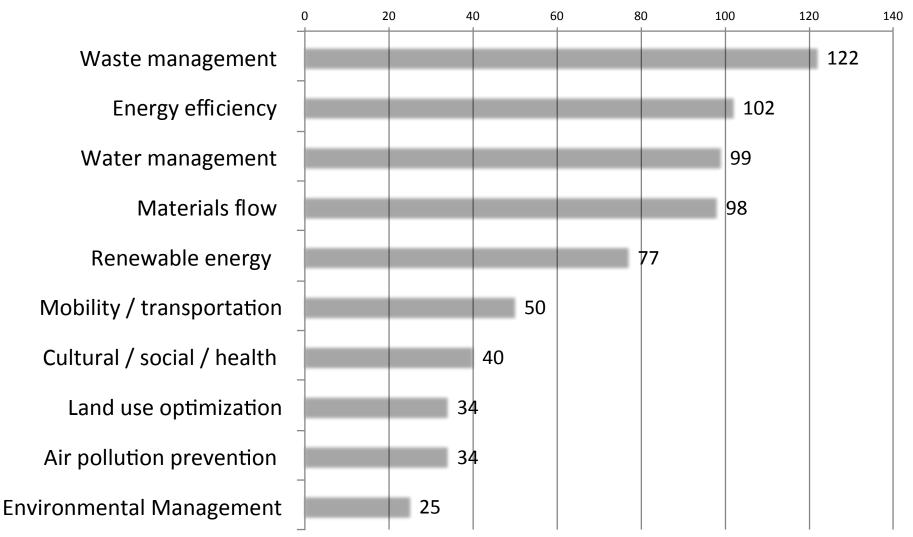
International survey on eco-innovation in industrial parks

Source: OFEV & Sofies, 2012

	•	Identified	Non-detailed	Detailed as case study			
		total	total	total	industrial	combined	urban
	Austria	4	1	3	2	0	1
	Belgium	10	3	7	6	1	0
	Bulgaria	2	1	1	1	0	0
	Denmark	5	2	3	0	2	1
	Finland	9	4	5	5	0	0
	France	19	5	14	13	0	1
	Germany	40	15	25	24	1	0
	Ireland	2	2	0	0	0	0
European countries	Italy	18	9	9	7	2	0
	Luxembourg	1	0	1	0	1	0
	Netherlands	16	9	7	7	0	0
	Poland	6	1	5	4	1	0
	Portugal	7	5	2	1	1	0
	Slovenia	1	0	1	1	0	0
	Spain	15	3	12	9	3	0
	Sweden	11	4	7	1	5	1
	Switzerland	22	14	8	7	1	0
	United Kingdom	14	9	5	4	1	0
Non- European countries	Australia	8	4	4	4	0	0
	China	20	7	13	7	6	0
	India	12	6	6	6	0	0
	Israel	2	1	1	1	0	0
	Japan	28	20	8	8	0	0
	South Korea	7	0	7	6	0	1
	Turkey	3	1	2	2	0	0
	United Arab Emirates	2	0	2	0	0	2
	United States of America	17	8	9	6	3	0
TOTAL		301	134		132	28	7
				167		167	

International survey on eco-innovation in industrial parks

Source: OFEV & Sofies, 2012





Origin of initiatives and support mechanisms

Diversity of support mechanisms for industrial symbiosis and eco-industrial park in Europe

National programs

Regional initiatives

Local initiatives

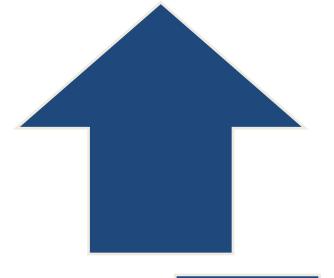
- 1. NISP (UK)
- 2. Zero-emission park initiative (Germany)
- 3. Environmentally
 Equipped Industrial
 Area (Italy)
- National waste management plan (Portugal)

- Cleantech
 Ostergotland
 (Sweden)
- 2. Eco-zoning, Wallonia (Belgium)
- 3. Randstad (Netherlands)

- 1. Kalundborg (DK)
- 2. Dunkerque (France)
- 3. State of geneva (CH)
- 4. Relvao (Portugal)
- Prato 1st Industrial Macrolotto (Italy)
- 6. Knapsack (Germany)
- 7. ..

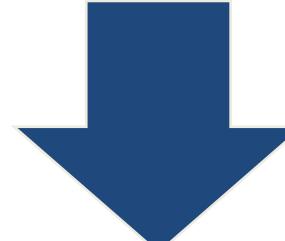


Influence of regional recycling systems



Juvenile recycling system

- Divert waste from landfill through the development of eco-industries or direct waste reuse
- Waste to energy



Mature recycling system

- Energy networks
- Shared services
- Eco-industrial development
- Clustering reinforcement



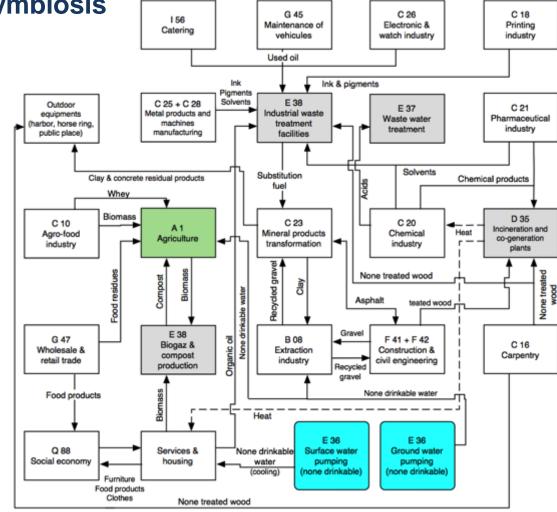
Influence of regional recycling systems

Identification, assessment and set up of resource efficiency

strategies and industrial symbiosis

GENEVA INDUSTRIAL ECOLOGY PROJECT

- Building material recycling
- Chemical waste reuse for water treatment and cement production
- Biomass cascading for energy production
- Waste heat reuse using heat pumps
- Water cascading





Sofies SA

20 consultants active in 21 countries

















Thank you for your attention!

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