

Industrial and Territorial Ecology, a sustainable economic development tool

A principle inspired from natural ecosystems

Industrial ecology draws inspiration from the functioning of natural ecosystems in order to recreate, on the scale of the industrial and territorial system, an organisation characterised by the optimal management of the resources and a high material and energy recycling rate : recovery of industrial flows, short economic cycles ...

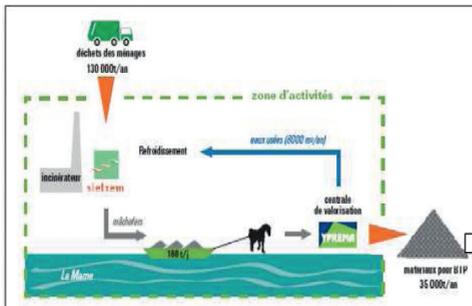
An operational strategy

Highlight synergies between stakeholders on the scale of a territory, sector, urban area, industrial parks ... : recovery of industrial flows, pooling of business services, sharing of equipments... Other themes as logistic and people's mobility are also raised.

A methodology

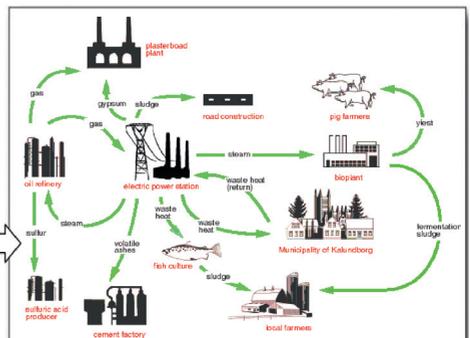
The study of industrial metabolism aims at qualifying and quantifying flows and material stocks which characterize companies and territory, in order to identify opportunities of cooperation.

When cooperation makes a system: from synergy to industrial "symbiosis"



Industrial synergy in Lagny-sur-Marne (France)

This synergy avoid the circulation between factories of 7 trucks a day, which represents yearly 6 tonnes of CO₂ eq not emitted. The wastewater reuse from clinkers treatments save yearly 8000m³ of water. This water used to be carry by tank truck to a treatment factory 27km far. This activity used to emit 50t eq CO₂. Altogether, both synergies avoid the emission of 56 tonnes of CO₂ eq per year. Finally, Yprema wastewater's valorization allowed the recycling barge funding and to create 4 jobs.



Kalundborg's industrial symbiosis (Schematic drawing)

These 19 synergies allowed to reduce by 20,000t yearly the oil consumption, by 200,000t the gypsum consumption and by 2.9 million cubic meters the water consumption. What's more, over 30 years, investments estimated at 84 million euros have resulted in resources and waste treatment process (about 15 million euros/year) savings.

Our actions in Industrial and Territorial Ecology

As a network lead on industrial ecology, Orée possesses an expertise not only on theory (methodology, tools, experience feedback...), but also on practice through its ability to bring together economic actors and develop field or research work.

Launched since March 2005, our working group dedicated on collective management of the environment and industrial ecology on industrial parks continues its work. The collective reflection has already enabled several publications like the **“Implementing an industrial ecology approach in an industrial park”** guide.

From 2007 to 2009, Orée took part in a **prospective workshop on industrial ecology** (AR-PEGE), launched by the National Research Agency with 19 stakeholders (companies, nonprofit and academic organizations...), which allowed the return of research directions to improve the call for projects ECOTECH formalization.

Furthermore, **Orée coordinated the project COMETHE** (Conception of Methodological and evaluation Tools for Industrial Ecology), a research project having won the 2007 Call for projects of the Eco-technology and Sustainable Development Research Programme (PRECODD) also directed by the National Research Agency. During this project coordination, Orée delivered added value to research and development, and in experimentation approaches developed on 5 pilot territories involved: the Aube territory, the Dunkerque territory, the Métropole Savoie economic area, the Pouzin maritime industrial site and the Lagny-sur-Marne industrial parks managed by the Marne et Gondoire conurbation committee in the Seine et-Marne department.

Orée is carrying out the mission “Companies sustainable competitiveness” with the Ministry of Economy and Finance (DGCIS). This national action is developed on the period 2010-2011. Ecology industrial approaches are engaged on 5 territories : Estuaire de la Seine (Seine estuary), Plaine du Var, Roanne territory, Bordeaux Urban Community and Jean Mermoz industrial area (La Courneuve). This consists of estimating the potential of industrial ecology on these territories, encouraging practical actions among economic actors involved, then producing experience feedbacks and recommendations for project holder public or private.

Finally, Orée is engaged in the ACTEIS project (2011-2012) followed by the French Environment and Energy Management Agency (**ADEME**) within the “Waste and society” Call for projects. This project is drawn up with the Studies and socioeconomic research Center of Lille (Clersé – University of Lille) and ECOPAL (Dunkerque Urban Community, Dunkerque Chamber of Commerce and Industry, and Dunkerque Promotion). Objective: Conduct a further analysis of actors and coordination’s strategies which start to be seen through industrial ecology experiences.

A toolbox : The methodology COMETHE

Having won the 2007 Call for projects of the Eco-technology and Sustainable Development Research Programme (PRECODD) launched by the National Research Agency, the COMETHE project, coordinated by Orée, involved twelve partners and 5 pilot territories to design a methodology and tools for the implementation of industrial ecology approaches on a business park scale.



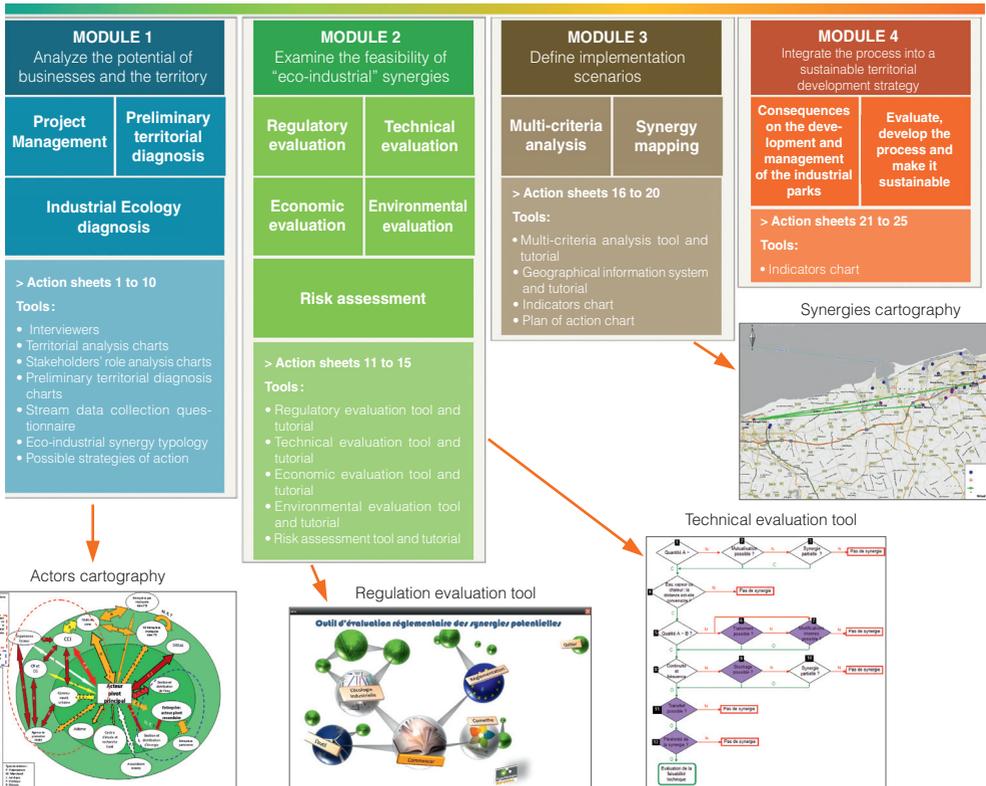
Internet platform : www.comethe.org



- 4 modules specifying the stages of the process
- 25 action sheets and associated practical tools
- Useful and other informations



COMETHE
Conception d'Outils Méthodologiques et d'Évaluation pour l'Écologie Industrielle



Publication

“Implementing an industrial ecology approach in an industrial park” guide

This publication is the result of a collaborative work conducted since March 2005 within the working group coordinated by Orée, which bring members (companies, local authorities, non-profit organizations...) interested in the development of a strategic knowledge in industrial ecology.

It aims to provide methodological elements and characteristic examples to public or private process owners, in order to take them around an industrial ecology approach on an industrial park. This guide is primarily intended for managers, construction workers in industrial parks, local authorities and also company directors.

The guide has been divided up into four parts :

1. Industrial ecology introduction and answers to the sustainable management of economical industrial parks underlined.
2. Proposition for a methodological framework in a local project management. A differentiated approach can help existing or creating industrial park cases.
3. French and international environmental and industrial ecology global management compilation.
4. Appendix with executive summaries and summary of the resources that you can mobilize in industrial ecology and environmental management of industrial parks.



Download the guide on our website:

<http://www.oree.org/publications/guide-ecologie-industrielle.html>