

The “eco-technologies” network a dynamic co-operation of 14 competitiveness clusters in a specific sector

Over the past few years, the virtuous circle, established in France, of sustainable development, innovation assistance and support to businesses has been largely driven by the policy of competitiveness clusters. Businesses which have subscribed to it draw considerable benefits from this policy in terms of expanding their research capabilities and opening themselves up to external opportunities. The future success of this particularly effective system presupposes that innovative businesses and their research activities carried out with the academic world receive support and development in the long term. The competitiveness clusters’ “eco-technologies” network was created in response to the public authorities’ objective to give clusters all around the country the kind of guidance and support they most need. It is based on the principle that working in a network fosters new solutions which will contribute to bringing excellence to the strategic industrial sectors within the green economy and enable the clusters engaged in the process to reinforce their strategic management and develop their ecosystem to drive innovation and growth.

Created in 2005, competitiveness clusters are now considered a strategic mechanism for stimulating research and innovation and developing growth nationwide. Following an initial assessment of this partnership-led system, carried out in 2008, three new development objectives were set down:

- To bolster the national strategic management system in place for competitiveness clusters, in particular coordination between clusters sharing a same area of interest or working on complementary areas of interest;
- To implement additional financing mechanisms to achieve new goals: shared innovation platforms and strategic projects for competitiveness clusters;
- To develop the innovation and growth ecosystem of each cluster, increasing the share of private financing and improving synergies between regions.

The second assessment, covering the period 2009-2012, which has just ended, will enable an analysis of the extent to which these goals have been implemented and determine the next directions to take.

Planning and forming the network

Pooling skills possessed by the clusters through the establishment of networks underpinned by the key goals of the Grenelle Environment Roundtable creates opportunities to increase partnerships, encourage the exchange of best practices and the pooling of resources, and strengthen innovation ecosystems that drive growth.

In this context, in March 2010 a planning group for an “eco-technologies” network was formed by eight clusters strongly geared towards eco-technology (Advancity, Axelera, Fibres, IAR, Mer Bretagne, Mer PACA, Risques and Trimatec) with the aim of

organising regular exchanges on their strategic missions and the technology skills of their members.

In June 2010, the government awarded a label to six new clusters in the eco-technology sector working in the areas of water (Pôle Eau - global -, Dream and Hydréos), waste recovery (Team2), under-floor technologies (Avenia) and building-integrated renewable energies (Alsace Energivie).

The first five clusters mentioned above joined the group of eight and together these 13 clusters signed a charter in November 2012 to mark the inception of a dedicated network based on areas of cooperation that cross the scope of their strategic focuses of activity:

- Environmental impacts – water, air, soil, noise, odours - and adaptation to climate change;
- Sustainable exploration and mining: biofuels, CO2 and resources management;
- Secondary raw materials and the circular economy;
- The eco-efficient plant and confined spaces;
- The eco-efficient and eco-friendly town;
- Metrology and instrumentation for environments and the environment.

The signed-up competitiveness clusters, which Optitec recently became a member, set out to develop synergies between the areas of research established, define the conditions for mutual development and raise their international profile, in such a way as to strengthen the position of all the stakeholders in the face of international competition.

A particularly relevant collaborative work tool

The network is all the more relevant as a work tool given that its members are already imbued with a dynamic collaborative culture. The working meetings held by the eco-technologies network since March 2010 have tackled subjects such as financing

Active participation in the Pollutec trade shows

For the occasion of trade show Pollutec 2010, the “eco-technologies” network organised a seminar on the subject of “metrology”, which brought together 150 participants at four roundtables on the following topics:

- Coupling terrestrial and satellite measurements;
- The quality of continental waters and natural environments;
- The quality of interior air;
- The illustration of potentials linked to mass segments (uses, authorities) through the conquest of emerging markets.

The potential opportunities for development were taken down, supported by examples of successes made by the French industry in this area. Other speakers reminded participants on actions in progress and presented the outline of the current industrial technological offering.



The network's participation in the Pollutec Horizon 2011 trade show consisted of creating an “eco-technology innovation showcase” village. The clusters organised over 40 conferences which highlighted the innovation

projects and programmes undertaken by its members, and presented their working tools (Institutes for Low-Carbon Energies, innovation platforms).

Over 600 listeners came to these conferences which broached the seven following topics:

- Space observation for the environment,
- Metrology and instrumentation for environments and the environment,
- The circular economy,
- Sustainable exploration and mining – Resources management,
- Eco-efficient plants and confined environments,
- The eco-efficient and eco-friendly town;
- Environmental impacts and adaptation to climate change.

From the “microalgae” seminar to the GreenStars IEED

Since their inception, the competitiveness clusters TRIMATEC, Mer PACA, Mer Bretagne and IAR have made the production and use of algal biomass one of their areas of interest, microalgae being recognised as rich in protein, fat, fibres, vitamins, minerals and pigments. Conscious of the international issues of exploiting microalgae, the clusters signed an agreement concerning the “production and development of microalgae” which also aims to help forge a French industry in the sector (bio-energy, CCS, water decontamination, industrial chemicals, food).

To unite the stakeholders and create synergies between the different initiatives, the clusters asked the CGDD/DRI to bring all the stakeholders together for a working seminar, which became an opportunity to map out actions, identify complementary skills and take an inventory of poolable resources. The findings of the seminar helped to organise and pool the initiatives more effectively as well as endow this emerging sector with research, technological transfer and development tools more conducive to rapid growth and high industrial development.

The Institute for Low-Carbon Energies (IEED), GreenStars, which received the label in March 2012, is a direct result of these initiatives (<http://www.pole-trimatec.fr>). GreenStars has set itself the goal to develop the French microalgae industry in order to bring industrial stakeholders the necessary know-how for this resource to be exploited. Microalgae offer opportunities in the energy, green chemicals, food and cosmetics sectors, high-added-value niche sectors. However, while researchers have mastered how to collect and extract the molecules, the process is still too costly for industrial use. One of the aim of the GreenStars project is to increase production from 1-5 g of microalgae per litre to over 10 g/l.

and internal and external communications and discussed the kinds of project that would be undertaken, in view of promoting growth amongst the clusters:

- **The identification of further sources of financing and development** that the clusters can mobilise in addition to the calls for projects launched by the ANR (French National Research Agency) and the FUI (Single Interministry Fund), the 7th FP (European Framework Programme for Research and Technology) and the joint programmes such as Life+, Eureka, ETP (European Technological Programme) and, in the area of export, the actions taken by Ubifrance, FASEP (engineering for emerging countries), PEXE (association for promotion and development of French eco-industries).
- **The integration of the clusters policy with the Investissements d'Avenir programme:** the member clusters of the network presented projects responding to the ANR calls for applications concerning Technological Research Institutes and the IEED; ADEME's participation in the network saw the agency taking part in drafting the specifications of certain calls for expression of interest for the Investissements d'Avenir programme;
- **The implementation of special communications resources** to facilitate the activities of the network, culminating in the opening of a secure collaborative work space on the website competitivite.gouv.fr; this hub of privileged information (specific studies, targeted statistics) is helping to increase the level of exchange between the clusters, develop mutual knowledge and promote the emergence of future collaborative projects;
- **Participation in joint actions to develop the action undertaken by the clusters,** most importantly by taking part at the Pollutec trade show and organising a seminar on microalgae (see insets).

A close relationship with other stakeholders in the sector

The competitiveness clusters' “eco-technologies” network is gradually becoming involved in the work carried out by other entities, helping to push the entire sector forward.

Participation in COSEI actions

The *États Généraux de l'Industrie* (General Committee for Industry), tasked with defining and setting out on the ground the framework for a coherent industrial policy for each of the key sectors, resulted in the creation of 11 committees. The Strategic Orientation Committee for Eco-industries (COSEI) was thus put in place by France's Minister for the Environment and the Minister for Industry on 20 July 2011, to consolidate a sector defined as a producer of goods and services designed to measure, forecast, limit and correct environmental impacts, such as water, air or soil pollution, and problems related to waste, noise and disruptions to ecosystems.

In January 2012, the ministers presented a road map for the eco-industries, entitled “Ambition

Ecotech” comprising 87 measures implemented this year which aim to bolster the competitiveness of the 18 strategic industrial sectors for the green economy (see Les filières industrielles vertes (The Green Industrial Sectors), Le Point Sur no. 126, May 2012). These measures, principally based around three areas, namely aid for innovation, export support and assistance for SMEs, concern, for some at least, all of the sectors:

- Renewing the eco-industries call for projects (for an amount of 10 million euros) with a strong focus towards SMEs;
- Identifying the most promising markets internationally and assisting the structuring of a French offering for the sustainable town;
- The signing by big groups of a pact committing them to strengthening their relations with SMEs (Eco-industries SME Pact);
- Supporting the organisation of a Sustainable Purchasing award, highlighting exemplary practices in incorporating environmental clauses into public tenders;
- Coordinating stakeholders engaged in public support to innovation.

Identifying and developing the sector’s specialisations

Five further measures in the “Ambition Ecotech” plan concern the metrology and instrumentation sector more directly:

- Identify, within the framework of “eco-industries” calls for projects, a specific category relating to decision-making tools or an integrated service offering for environmental surveillance;
- Conduct awareness raising initiatives amongst stakeholders in the eco-technologies network to promote the emergence of demonstrator and technology platform projects dedicated to developing measurement sensors or systems, particularly in the area of water;
- Promote a regulatory framework to fasten the development of metrology in the area of water;
- Bring stakeholders together with Equipex GeoSud (Montpellier) to pool skills, create a portal promoting access to data supplier sites and construct a service offering;
- Include metrology development and the European Environmental Technology Verification initiative in the LNE (France’s national metrology and testing laboratory) performance contract, to improve the position of competent testing and validation organisations in European Commission calls for projects.

Boosting the dynamic cooperative culture

As a start, the identity of the network has been confirmed by eco-technologies projects undertaken through the Single Interministry Fund (FUI). This dynamic culture now needs to be boosted through an inter-cluster “project factory”.

A well-established contribution

A review of the most recent calls for projects launched as part of the FUI shows, of the projects accepted since early 2011, an increasing emphasis towards projects relating to eco-technology,

particularly those dealing with water management and treatment.

The influence of the eco-technologies network on the production aspect of collaborative R&D projects is gradually being revealed as shown by chart 1 oppositely. This is supported by an analysis of the amounts involved in the selected projects.

The share of the network in the total amount of the accepted eco-technologies projects, which had already accounted for 40% since the 10th call for projects, exceeded 60% for the 13th call for projects (see chart 2). Furthermore, the co-labelling of projects, encouraged by the “eco-technologies” network, which was an objective pursued by the public authorities, appears as an increasingly important criterion of success. This is borne out by the long-term results, all clusters combined, since the majority of projects accepted by the calls for projects selection process run by the FUI are now co-labelled.

Lastly, an assessment of the selected projects according to their area of interest (chart 3) shows a predominance of projects from the network, metrology (MM) coming out on top, with the other areas of interest evenly distributed (clean processes

Chart 1 : Growth in the number of labelled projects from the clusters in the network in the overall number of eco-technology projects selected by the FUI

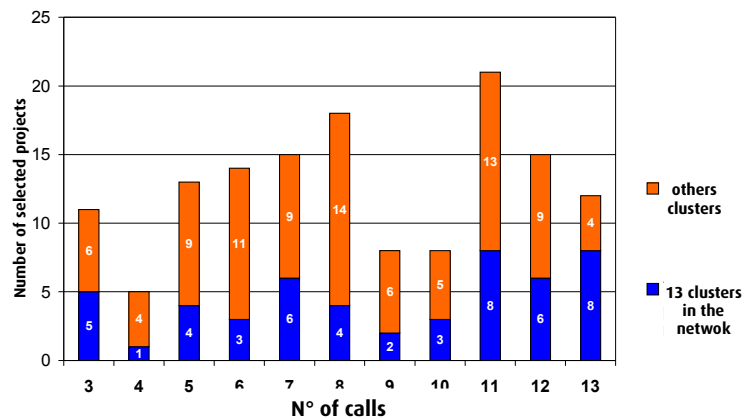
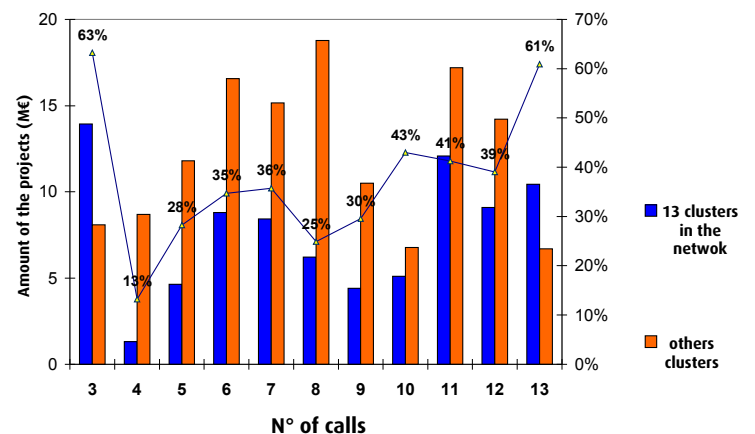


Chart 2 : Growth in the proportion of labelled projects from the clusters in the network in the total number of eco-technology projects selected



(PP), waste treatment (TD) and material recovery (VM)), the area of eco-design (EC) being slightly less well represented. However, there is a clear leaning towards clean processes if the scope is extended to included eco-technological projects selected for all 71 competitiveness clusters combined.

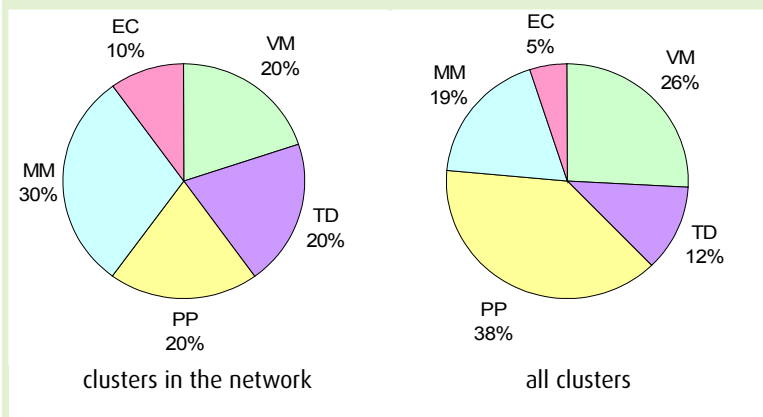
Towards an inter-cluster "project factory"

One of the key missions of a competitiveness cluster is to contribute to the emergence of collaborative R&D projects amongst its members, which will enable the cluster to fulfil its strategic objective of becoming a "project factory".

For its part, a cluster network is a tool which aims to make it easier for its members to share ideas and practices. It is also a space conducive to examining complex matters which in turn enables clusters to raise their ambitions. In such circumstances, while the clusters' active participation has undoubtedly started to make progress (project co-labelling, shared actions), it is more advisable to secure the mechanisms already established and support the "open innovation" process between clusters. Bearing this in mind, the eco-technologies network has put the search for new opportunities for action on its agenda, with the aim of accelerating the process for generating R&D and innovation development projects:

- Establishing a procedure for attracting additional contributions in order to find, from among its network members, the laboratory or business whose skills are needed for a given project, to make it feasible;
- Carrying out a collaborative assessment on the reasons which led to a project being refused in the FUI selection process;
- Developing a joint initiative on mechanisms to adjust projects following an unsuccessful research phase;
- Starting discussions on improvements to be made to improve project results, which could simply be caused by a lack of interest in ensuring these results are effectively disseminated.

Chart 3 : Selected eco-technologies projects split by area of interest among the clusters in the network and all clusters in France (total of calls n° 3 to 13)



Competitiveness clusters, phase 3.0

The collaborative actions carried out within the framework of the competitive clusters eco-technologies network are at the forefront of the challenges of public policies implemented by the ministry for sustainable development.

But the development of this network more broadly reinforces the ambition of the public authorities to stimulate and support the eco-technologies sector, which reveal opportunities for growth and employment in France and internationally. That is why the results of its efforts need to be assessed in light of future directions, within the framework of "phase 3.0" of the competitiveness clusters, that the network will in some way have successfully anticipated and evaluated.

The new phase should, in fact, place the emphasis on strong collaborative processes between these stakeholders in research excellence across France - the competitiveness clusters - and thus support the innovative choices made by the members who subscribe to the "eco-technologies" network charter.



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Read more about the road map « Ambition Ecotechs » (in french) :
<http://www.developpement-durable.gouv.fr/Ambition-Ecotech-87-actions-pour.html>



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