

Chemical Regions for Resource Efficiency

Ever since Michael Porter's generation of thinkers brought the attention of strategists to the successes and workings of clusters such as the textiles one surrounding Benetton in northern Italy, policy makers have been seeking to harness and extend the potential of clusters. Clusters drive innovation and they increase productivity. Clearly the bio-based economy is no exception.

From 10 – 12 December BIOCHEM partners CEFIC and PNO Consultants will be joining up with 20 other organizations representing 6 regional chemicals clusters in Europe to kick-off a major FP7 Regions of Knowledge project called Regions for Resources, or R4R, and aimed at exploiting cluster dynamics to foster resource efficiency in the industry. Initiated by CEFIC and coordinated by the SP Technical Institute in Sweden, the project will seek opportunities for reducing, reusing and eco-substituting conventional feedstocks as well as clever ways of integrating the processes of cluster members.

The meeting will be held for the project partners at the ISPT Amersfoort offices in the Netherlands while project steering committee member, and CEFIC's Research and Innovation Director, Gernot Klotz will make the inaugural address.

R4R is comprised of regional bio-chem groupings, research organizations and private industry. The work will take place over 3 years and involve the project members in a sophisticated process of analysis, cooperation and development aimed at integration of their own individual research and innovation efforts into a region wide and Europe wide programme of innovation in the field of sustainable chemistry.

Region

Liaising organisation of triple helix

Västra Götaland Stenungsund Sweden
Business Region Göteborg

Port of Rotterdam
Port of Rotterdam Authority

South West Netherlands
Green Chemistry Cluster

Aragon Spain
CIRCE

West Pomerania Poland
Green Chemistry Cluster

N. Rhine-Westphalia Germany
CleanTechNWR

European Chemical Industry Council
CiaoTech PNO Consultants Italy

The European Commission has provided 2,5 M€ funding for the project through its FP7 Regions of Knowledge programme in order to bring together **six complementary regional clusters**, each with their own local expert public-private research communities. They will actively and systematically engage in cooperation, development and integration aimed at improving resource consumption and eco-innovation in industry. By application of the Technology Innovation Systems (TIS) methodology in an in-depth mapping of innovation systems, research

agendas, production & innovation capabilities as well as the stakeholders involved the consortium will identify viable and impactful concepts for eco-sustainability innovation. The project will create a Joint Action Plan and related support measures as a launch stimulus for deployment of these eco-sustainability concepts in the industry.

You can get a flavour of the subjects the project will cover by taking a glance at the six R4R regional clusters, the important and diverse chemical production centres they represent, and their current **ambitious resource efficiency visions and strategies**. They are eager to use R4R to accelerate the process of change and smart specialisation, through sharing of complementary approaches.

1. **Västra Götaland Stenungsund** (Sweden): under the “Hållbar Kemi 2030 (*Sustainable Chemistry 2030*)” vision the chemical companies in Sweden’s largest chemistry and materials cluster, are working on a world leading initiative to progress towards a **fossil-independent economy by 2030**, by stimulating alternative and bio-based feedstock and energy for chemical production, by industrial symbiosis
2. **North Rhine Westphalia** (Germany): The goal of NRW is to unlock the potential of reducing CO₂-emissions and increasing energy efficiency at the interfaces of energy, steel, chemistry and biotechnology industries, which are major industry sectors in NRW.
3. **South-West Netherlands**: through its Green Chemistry Campus aims to **boost the bio-based economy** of this important agro-chemical and aqua-culture region by development of bio-based building blocks for performance materials, chemicals and coatings and by increasing the sustainability of the process industry through innovative clean tech and “closed loop” solutions.
4. **Port of Rotterdam** (The Netherlands): committed to a series of ambitious and far reaching industrial and resource efficiency goals under “Vision 2030: Port Compass” including achieving the **smallest ecological footprint** per tonne-kilometre in the world and accomplishing the transition to a significantly bio-based chemicals industry and a sustainable energy supply.
5. **Aragon** (Spain): through the new Strategy for **Industrial EcoInnovation** Aragon aims to foster (1) efficiency in the use of primary feedstock and by-products, (2) industrial symbiosis (eco-industrial parks), (3) integration of energy intensive facilities and cogeneration, (4) clean technologies for coal processing, (5) CO₂ capture and storage technologies and (6) control, automation, flexibility and reliability of the industrial processes.
6. **West Pomerania** (Poland): as one of Poland’s largest producer of fertilisers and other chemicals the region aims to rapidly develop a community of research and cooperation to introduce efficiencies in feedstock, energy and by-product handling. West Pomerania plans to join the lead regions in Poland for

research into environmentally friendly products and chemical technologies for processing of fossil-based raw materials and introducing biomass and waste as feedstock and fuel for the chemicals industry.

Accelerating innovation in these domains promises enormous impacts in resource efficiency by 2030 i.e. a major CO₂- footprint reduction of up to 50%, meaning reducing 0.5 GtCO₂e annually, a potential 10-fold increase in (bio)renewable raw materials as feedstock (including end of life recyclables), a 30% reduction in primary energy consumption and a 20% reduction in raw materials net use (e.g. mineral, chemical, bio-based feedstock) and secondary (e.g. water and other auxiliary materials) materials, by increasing chemical and physical transformation yields. R4R targets increased global competitiveness and new high-quality jobs through a sustainable European process industry.

The benefit of R4R for your organization, even if you are not directly involved, will be a set of concrete ideas and examples of how industrial development can be decoupled from negative environmental benefits, how you can gain advantage through cooperation and how you achieve greater eco-sustainability in your business.

Please keep in touch with R4R over its lifetime (website coming soon) and hopefully we shall have the opportunity to collaborate with you in some of its actions.

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