



Worldwide Best Practices in Eco-Efficient Construction and Management of Chemical Parks

Workshop

ACHEMA, Frankfurt, Germany

17 June 2015, 3-6 pm

Saal Conclusio 2, Congress Center

ACHEMA 2015

Worldwide Best Practices in Eco-Efficient Construction and Management of Chemical Parks

Workshop, 17 June 2015, 15:00-18:00

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Workshop Programme

- 15:00-15:10 **Welcome and introduction**
Dr. Hanny Nover, Director of ECRN Secretariat, Brussels
- 15:10-15:35 **The future of the chemical industry: Megatrends and their implications for the chemical industry and chemical parks**
Prof. Hannes Utikal, Rhein-Main-Cluster Chemie & Pharma (Provis Hochschule), Hesse, Germany
- 15:35-16:00 **Chemical Parks as regional engines for value creation: international case studies**
Daniel A. Gottschald, Chemie-Cluster Bayern, Bavaria, Germany
- 16:00-16:25 **The low-carbon industrial park – meeting the challenge**
John Brady, North East Process Industry Cluster, UK
- 16:25-16:50 **Limburg and its Open Innovation Policy on the Campuses in the Knowledge Axis**
Prof. Martin Paul, Maastricht University, Limburg, the Netherlands
- 16:50-17:15 **The ‘verbund’- the basis for value creation**
Dr. Ernst Grigat, CHEMPARK, North Rhine-Westphalia, Germany
- 17:15-17:40 **East German site cooperation as an example for excellent energy- and eco-efficiency**
Dr. Christof Günther, InfraLeuna GmbH, Saxony-Anhalt, Germany
- 17:40-18:00 **Panel discussion: Beyond site integration advantages – from chemical parks to chemical regions**
moderated by Dr. Hanny Nover, Director of ECRN Secretariat, Brussels

Evening Programme

(Offered by the Hessian Ministry of Economics, Energy, Transport and Regional Development in cooperation with ECRN)

- 18:45 Bus departure from ACHEMA (“Tor West”, map attached) to *Industriepark Höchst*
- 19:00 Guided tour at *Industriepark Höchst*
- 20:00 *Frankfurter Abend* – dinner at restaurant “Zum Bären“



Organiser: European Chemical Regions Network (ECRN)

Venue: ACHEMA, Saal Conclusio 2, Congress Center

Registration and further information: ecrn@ecrn.net

(Please register by 5 June 2015)

INTRODUCTION

Europe is a global leader with significant experience in the sustainable development of chemical parks. Best practice solutions in this regard cover planning, construction and management of chemical parks, including a state-of-the-art management of HSE-issues.

However, modern concepts of chemical parks also include reliable supply chain management, support of business innovation and R&D activities and the park's sustainable integration into social infrastructure.

In this workshop, the European Chemical Regions Network (ECRN) brings together leading experts in chemical park planning and management, who will present global best practice examples in chemical park development and demonstrate the role of chemical parks as value creation drivers for entire chemical regions.

THE FUTURE OF THE CHEMICAL INDUSTRY: MEGATRENDS AND THEIR IMPLICATIONS FOR THE CHEMICAL INDUSTRY AND CHEMICAL PARKS

Prof. Hannes Utikal, Rhein-Main-Cluster Chemie & Pharma (Provdia Hochschule), Hesse, Germany

How do companies in the chemical and pharmaceutical industry handle identified megatrends? How do they transform their value chains? And what does this transformation mean for successful industrial parks? Results from a current study will be presented to answer these questions.

The state-of-the-art study analyzes the importance of different megatrends for the chemical and pharmaceutical industries and the regional configuration of the value chain. Management implications for companies in the chemical industry and their suppliers and customers will be presented. As the industry will become even more international, will focus more on innovation across disciplines and industry sectors, the importance of cooperation in chemical parks and thematic networks will increase.

The presentation will answer the question how competitive advantages in the chemical and pharmaceutical industry can be realized through successful cooperation.

CHEMICAL PARKS AS REGIONAL ENGINES FOR VALUE CREATION: INTERNATIONAL CASE STUDIES

Daniel A. Gottschald, Chemie-Cluster Bayern, Bavaria, Germany

Modern chemical parks can provide optimized value creation opportunities and create a "triple-win"-situation for companies on site (including the park operator), local authorities and the society. Due to site integration advantages companies can make optimal use of physical and non-physical supply chains on site, benefit from logistics and distribution systems as well as additional service platforms such as R&D infrastructure, technology transfer and technical services. Value added for the society can be created by eco-efficiency, including renewable energy supply, resource and energy efficiency, zero-emission strategies, and best-in-class logistic systems and treatment or usage of industrial waste.

CCB and its Competence Center for Industrial Site Development run an international "Site Development Program" in order to bring together global stakeholders of sustainable park development. Participants represent chemical parks with best-in-class solutions for technical site integration, eco-efficiency, and optimized business potential. Their chemical parks attract companies by their product portfolio and business opportunities with other companies on site and on the local market. This way, parks help to close gaps in local value chains by providing „bottleneck products“ for the most important regional industry sectors. Best performing chemical parks develop services to include start-ups, SMEs and big companies into local supply chains from raw materials to product systems. Successful chemical parks follow an integrated strategy of attracting key investors by tailor-made infrastructure, b2b match-makings and additional services, which may be provided by a cluster management approach.

The presentation will illustrate best-practice models regarding the development of a "unique selling proposition" with case studies of chemical parks in Europe and Asia. These parks optimize local value creation by a unique management approach, by providing market transparency for business cooperation, installing local technology platforms and service clusters, building up science centers or realizing a concept of eco-efficiency, e.g. by installing a carbon management system. The presentation will give an overview on chemical park strategies both in Europe and in emerging industrial countries and show some ideas of optimizing global chemical value chains by bringing park operators together. It will show some practical insights for park developing companies, planners and operators of chemical parks and local authorities.

THE LOW-CARBON INDUSTRIAL PARK – MEETING THE CHALLENGE

John Brady, North East Process Industry Cluster, UK

LOCIMAP – the Low Carbon Industrial Manufacturing Parks project – is a response to the growing challenges faced by European energy intensive manufacturing businesses in competing with economies benefiting from access to low-cost energy whilst at the same time addressing the carbon targets set by governments and the EU in response to the climate change threat.

LOCIMAP has brought together 14 chemical & industrial parks across the EU, key energy intensive manufacturing sectors and leading specialists to identify the practical paths which Europe can take to grow a revitalised low carbon industrial base. A major objective has been to see if and how much closer integration in manufacturing complexes improves efficiency both of energy and material use, and achieves a sustainable production model.

The current EU research and Innovation programme Horizon 2020 with its establishment of programmes such as SPIRE – Sustainable Process Industry through Resource & Energy Efficiency – confirms that LOCIMAP is addressing a key issue for the EU's energy intensive sectors especially chemical manufacture. The interests of the chemical regions has been at the heart of LOCIMAP, with leading members of the European Chemical Parks Promotional Platform (ECSP) in the consortium.

The project has analysed the opportunities presented by cross sector integration and the technologies which are and will come available in the future. Specifically it has examined ideas around Industrial Ecology and Symbiosis and has looked at how these can be used to address the challenges. Workshops have been held across Europe to gather issues and responses. The project will outline its conclusions about how far we can go with integration and the benefits available. It will also address technology opportunities including what modern Information and Communication Technology can do to improve Park Operation and consider how park management needs to be developed to allow sustainability goals to be achieved. The kind of business paradigms needed to make parks sustainable will be discussed as well as policies which could benefit the future sustainable park. The project will go on to outline the future technologies which need to be deployed if we are to meet the twin challenges of cost and carbon. Finally the project will demonstrate a tool developed to assist parks, communities and policymakers understand and promote the benefits of enhanced industrial parks especially in achieving a sustainable low carbon future.

LIMBURG AND ITS OPEN INNOVATION POLICY ON THE CAMPUSES IN THE KNOWLEDGE AXIS

Prof. Martin Paul, Maastricht University, Limburg, the Netherlands

Since Maastricht University's (UM) establishment in 1976, the education and research programs have continued to grow and evolve. Today, varied academic programs are offered, including research and education in biobased materials and system biology.

UM, the Maastricht University Medical Centre (MUMC+) and Zuyd University of Applied Sciences aim to play a leading role in the sustainable economic development of the province of Limburg. This aspiration manifests itself in an ambitious strategic program, Knowledge Axis. The Knowledge Axis is part of Brightlands, which is an initiative to find solutions to the global challenges in materials, health and nutrition. Leading international researchers, entrepreneurs and students work together across scientific, geographical, and organizational boundaries to develop new healthy and sustainable solutions.

The campuses in Maastricht, Sittard-Geleen (Chemelot Campus), Venlo and Parkstad are linked in an international knowledge center in the fields of biomaterials, innovative healthcare and big data. The campuses attract knowledge workers, keep the population vital and fuel the growth engine of the region.

The research group "Biobased Materials: From Monomers to High Performance Polymers" at Chemelot started in January 2013. The "Chemelot Institute Science & Technology" (InSciTe) program, a result from the cooperation with DSM and TU Eindhoven, will focus on the biobased building blocks and chemical processing as part of the Bio-based Materials development. InSciTe also covers the upscaling of biobased building blocks production in a pilot plant to be established at Brightlands Chemelot Campus in 2015. A second line of research concentrates on the development of Biomedical Materials.

The "Aachen Maastricht Institute for Biobased Materials" (AMIBM), a result from the cooperation between RWTH, UM and Fraunhofer IME, covers the chain of knowledge from biomass to applied biobased materials and is responsible for the materials upscaling and application phase. AMIBM also ensures cross border cooperation by connecting the Limburg campuses and providing a link to the Melaten Campus at the Rheinisch-Westfälische Technische Hochschule Aachen (RWTH).

Finally, the program LINK, which stands for Limburg Invests in its Knowledge Economy, hosts two new research institutes: MERLN and M4I. M4I focuses on the development and application of technological platforms for multimodal molecular imaging. Research at the MERLN Institute for Technology Inspired Regenerative Medicine is focused on developing novel and challenging technologies to advance the field of tissue and organ repair and regeneration. The institutes will be located at the Maastricht Health Campus but will also cooperate with other initiatives, like Chemelot InSciTe and AMIBM, on the Chemelot Campus.

THE 'VERBUND' - THE BASIS FOR VALUE CREATION

Dr. Ernst Grigat, CHEMPARK, North Rhine-Westphalia, Germany

Establishing integrated compound sites, characterized best with the German word "Verbund", enabled the German chemical industry from the 19th century, to grow the national third largest industry sector. A major contribution to this success came from the close cooperation between research and production.

To keep the verbund intact in times of major portfolio changes, the concept of chemical parks was established. Thanks to the verbund, despite all mergers and acquisitions, answers to the mega-challenges like mobility, climate change, or health challenges are being developed in the chemical parks.

Also many everyday products that improve the daily quality of our life, have their origin in chemical parks. As an example, materials for nine out of ten product groups in modern cars are manufactured in CHEMPARK.

The site operator CURRENTA takes care of the CHEMPARK network. For example, CURRENTA adapts the infrastructure to the needs, invites investments that fit nicely into the verbund, and represents the CHEMPARK point of view in politics and the public.

Networking does not stop at the CHEMPARK boundaries. This applies in terms of logistics to other locations or to large seaports as Rotterdam and Antwerp. This also applies in terms of political ties in an organization like ChemCologne, an association of the chemical companies within the Rhineland area, one of the largest chemical clusters in the world.

EAST GERMAN SITE COOPERATION AS AN EXAMPLE FOR EXCELLENT ENERGY- AND ECO-EFFICIENCY

Dr. Christof Günther, InfraLeuna GmbH, Saxony-Anhalt, Germany

Besides feedstock costs, the costs for energy are the second major driver with an impact on the economic efficiency of the chemical production sector. In the framework of the big energy debate in Germany and Europe this presentation will illustrate the possibilities for generating economic efficiency in production through flexible and intelligent systems.

This presentation gives an overview of energy optimization in chemical parks by the example of the site in Leuna. It shows the adaption to the challenges of the market competition after privatization and restructuring in 1990's through transformation. The presentation will show possible contributions of site operators in terms of the efficient use of energy and to stabilization to the energy supply system in general.

Moreover, different examples for the interconnectedness between companies and the local site operator InfraLeuna and resulting economical and ecological effects will be highlighted.

PANEL DISCUSSION: BEYOND SITE INTEGRATION ADVANTAGES - FROM CHEMICAL PARKS TO CHEMICAL REGIONS

moderated by Dr. Hanny Nover, Director of the ECRN Secretariat, Brussels

Modern chemical parks are much more than industrial sites. They are platforms and fertile breeding ground for value creation and new innovations. Moreover, chemical parks are very integrated in the communities in which they operate and these links to the society, the universities or other research or education institutions, as well as relations with the public are important parts of park operations. Thus cooperation does not only take place within the parks, but also with partners beyond the physical boundaries of a park (clusters, experts, researchers, inter-institutional collaboration etc.)

The overarching questions guiding the discussions in the workshop will focus on issues such as: "What are the key success factors for developing a world-class, modern chemical park?", "How universal or transferable are park management and development models? What can we learn from one another?", "What kind of obstacles may appear in park development / collaboration within parks (or beyond park boundaries with other partners)? How can these be overcome?", "What is the link between a park and the regions or regional clusters?", "What kind of support do parks receive or need from local or regional authorities?", and "What is the future of chemical parks? How will they be designed/operated for instance in 10, 20 or 50 years? What are the main drivers and key trends for the future?".

EVENING PROGRAMME

After the workshop, the participants are invited to participate on a guided tour to *Industriepark Höchst* (<http://www.industriepark-hoechst.com/en>) and a dinner (*Frankfurter Abend*) at restaurant Zum Bären offered by the Hessian Ministry of Economics, Energy, Transport and Regional Development in cooperation with ECRN.

Bus transfer from ACHEMA to *Industriepark Höchst* and the restaurant will be provided. Participants will be picked up at 18:45 from "Tor West" (map attached), taken to a tour at the industrial park, and dropped off at the restaurant at 20:00 for the dinner.

REGISTRATION

Please register via e-mail to ecrn@ecrn.net by 5 June 2015. If you wish to participate only in the workshop or the evening programme, please note that in your registration.

The workshop and the evening programme are free, but participants need to have a valid ticket to ACHEMA 2015 (please note that ACHEMA entrance fee is not covered by the workshop organizers).

PRACTICAL INFORMATION

The workshop will take place at ACHEMA in "Conclusio 2" (Congress Center) on 17 June 2015, 3-6 pm.

Exhibition grounds of Messe Frankfurt GmbH
Ludwig-Erhard-Anlage 1, 60327 Frankfurt am Main, Germany

Please see the ACHEMA website (<http://www.achema.de>) for more detailed information about the venue, access, travel, accommodation etc.

ABOUT ECRN

The European Chemical Regions Network (ECRN) is an association of regional authorities from across Europe. The network represents regions where chemical industry is an integral part of the local economy and seeks to bring regional actors together for mutual learning, exchange of information and joint projects. The aim of ECRN is to improve the competitiveness of chemical regions, facilitate collaboration between regions, and to represent the common interests of the chemical regions in Europe.

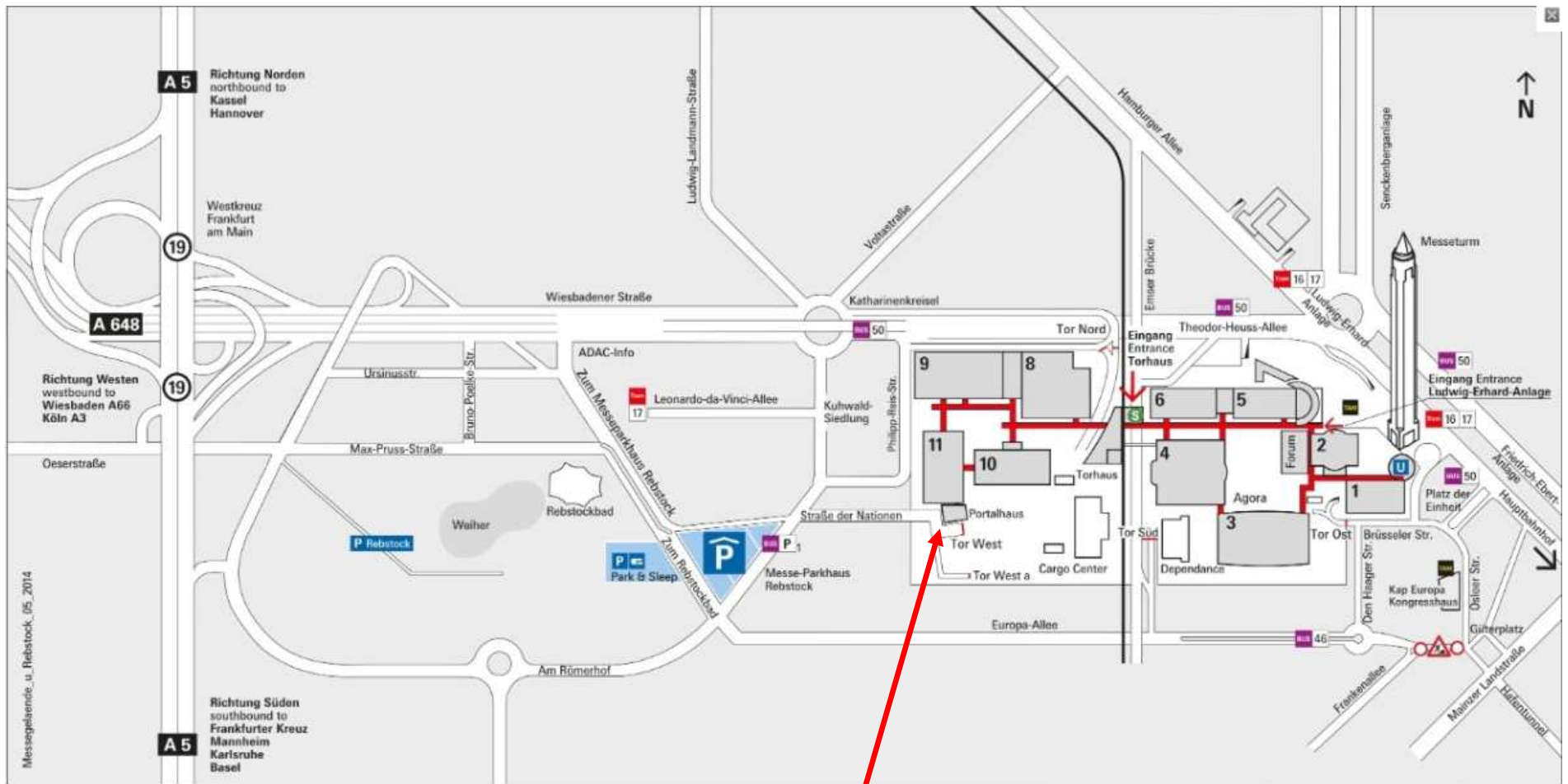
Originally started as an INTERREG project in 2004, the ECRN has now a permanent Secretariat in Brussels and is registered as an association under German law. ECRN is recognized as a European stakeholder for regional issues concerning the chemical industry and policies.

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ACHEMA 2015





Pick-up am 17.06.2015 um 18:45h für Fahrt nach IPH