

# SWOT Analysis and Benchmarking Study

## Saxony-Anhalt

### *Part III Thematic Priorities*

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### **III. 1 Restructuring and development of old industrial sites and chemical sites**

Saxony-Anhalt has a long tradition of chemical engineering. Almost half of the Eastern German chemical turnover is produced here, making this industry the second most important economic sector in Saxony-Anhalt. Chemical engineering also figures strongly in terms of innovation and employment.

The Eastern German chemical industry, with growth rates in turnover and employment visibly above the national average, is moving into the fast lane. One of the reasons is the Central German chemical triangle. Its six chemical sites on 50 km<sup>2</sup>, its array of superior equipment and new formula for success are geared towards creating synergies.

Its long list of state-of-the-art service suppliers for the chemical industry and extensive raw material and product networks are the basis for the promotion of synergy effects for competitiveness in the Central German chemical triangle.

Together with national and international investors, the Central German chemical triangle has seen an impressive new start. Its chemical facilities have just what new companies need to relocate here. The entire infrastructure, production plants and their efficient and ecological supply and disposal systems have been restructured, making them state-of-the-art. This is where outstanding chemical expertise goes hand in hand with popular acceptance of chemical engineering. What makes this region outstanding are its competitive conditions, an infrastructure and qualified workers ready to perform. Since 1990, more than 100 billion euros have been invested in target-orientated projects in Central Germany from private and public funds for transportation systems and industrial plants as well as logistic, service, trade and science centres.

#### **Chemical Site Management Expertise**

In the last few years, the companies at the local chemical sites have gathered extensive experience in restructuring industrial areas and reclaiming contaminated chemical sites. The project CeChemNet was the core centre for the cooperation of the local actors and the bundling of competences. CeChemNet's mission now is to focus this expertise and to transfer it to others. It has a wide range of solutions tailor-made for the major changes that Eastern European industrial sites are undergoing.

Chemical companies, chemical service suppliers and trade associations from the Central German chemical triangle in the German state of Saxony-Anhalt have joined forces in CeChemNet. The "Central European Chemical Network" is an interdisciplinary network that combines a wide range of expertise, specialised engineering excellence and successful chemical site management. CeChemNet focuses regional capacities in chemical site development, creates synergies with its raw material procurement alliance while promoting the cross-acquisition of know-how in its six chemical facilities.

CeChemNet also directs its activities to outside investors, developing a network of tailor-made strategies for outside companies to settle in the Central German chemical triangle. Its range of services include experience with renovating

contaminated industrial sites while assisting in future processes of change in the industrial regions of the countries that have recently joined the European Union. A special service of these network planners is to provide support for developing chemical sites in identifying, systematising and describing existing or needed expertise and outlining the technical, organisational, financial and promotional potential for developing sites.

100 experts in this network have systematically formulated their expertise in a list of services. Then, CeChemNet offers them to European chemical sites undergoing dramatic change that are looking for efficient chemical/industrial site management systems to develop leading-edge technologies, to sites in the new eastern European states in the process of restructuring or to industrial regions working together in the European Chemical Regions Network that are interested in solutions for problems in the development of chemical sites.

## CeChemNet - Central European Chemical Network

CeChemNet brings together the **six chemical parks** of the region. **The partners** are the site companies of the Bitterfeld Wolfen, Leuna, Schkopau/Böhlen, Zeitz and Piesteritz chemical centres.



Furtherme the network is assisted by the expertise of organisations such as the North-East Chemical Association, the isw, Gesellschaft für wissenschaftliche Beratung und Dienstleistung mbH, and the Bildungsverbund Chemie und Technik e. V. (BVCT) – Education Network Chemistry and Technology.

CeChemNet focuses the experience and knowledge that have been acquired since 1990 when the region with a traditional chemical background underwent extensive restructuring. Their key priority is to apply their chemical site management expertise in two focused areas:

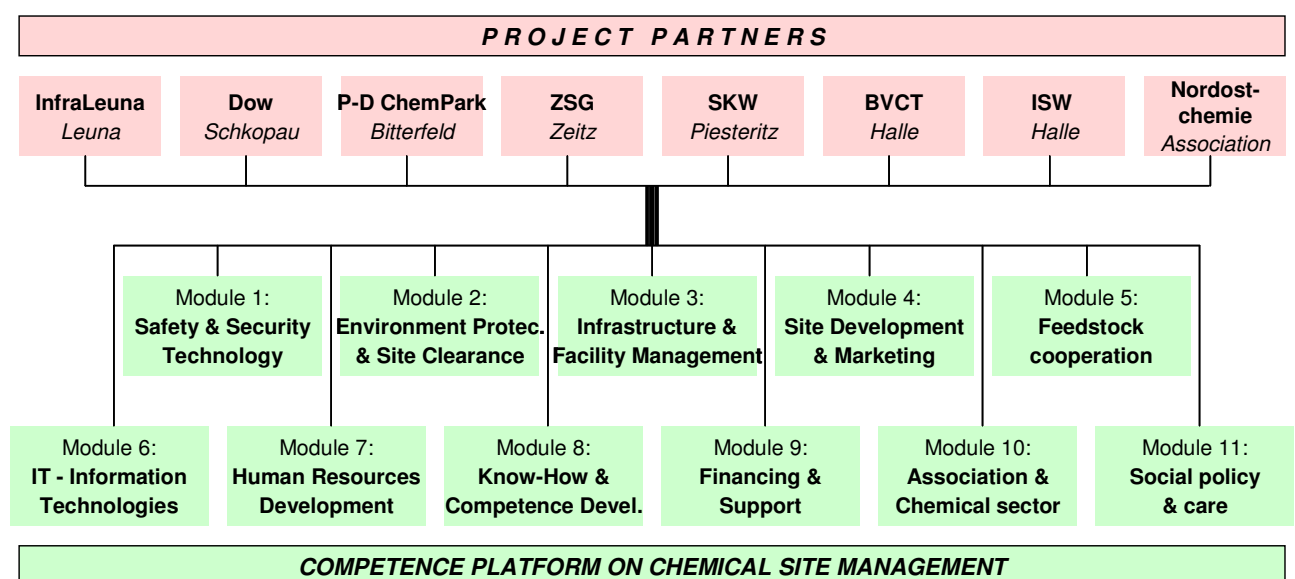
- CeChemNet is committed to attract new companies to invest in the Central German chemical sites to develop and expand existing operations.
- The network business partners target advising and supporting companies at Eastern European chemical sites to solve their problems in restructuring and development projects.

Each of the CeChemNet's sites is specialised in a certain field of engineering excellence that has emerged from their historical background and through a variety of privatisation models. This means that each facility has its own expertise in solving the problems presented by restructuring processes.

CeChemNet combines this knowledge in an extensive list of services for creating a channelled set of high-quality synergy structures. This means that CeChemNet also offers facilities in Eastern Europe with structural processes comparable to those in Central Germany an interesting new compendium of best-practice solutions.

This list of services is built on a modular structure for individual and system solutions in security management, environmental protection, contaminated industrial site reclamation, raw material procurement, infrastructure and site management and the use of key information technologies. CeChemNet provides access for small businesses to international network structures and gives them the key to interregional project partnerships. Facility restructuring also is in need of support fund management, financing strategies, knowledge and expertise development, support from associations for structural work and employee qualification. The result is an extensive package of consultation and services that the network has tailored for the needs of the target group.

## Eight project partners have established eleven Modules (project groups)



CeChemNet combines this knowledge and experience in an extensive list of services for creating a channelled set of high-quality synergy structures.

## List of best practice solutions

### **1. Safety and Security Management**

Chemical sites and enterprises have high security needs. Safety and Security technology of the worldwide highest standard has been developed on all sites of the chemical triangle during the past 12 years. The experiences and best-practice approaches for the safety management – for the organisation and the implementation (safety organisation, access control, fire brigade, emergency management) - have been specifically developed for “closed” chemical sites and also for sites with public streets (so called “open” sites). Therefore, the solutions have taken into account the respective framework conditions and structures (specific sites agreements, user rules, safety criteria, instruments for the co-operation and security) and the present laws (European and national law, such as Seveso II).

### **2. Environment Protection and Site Clearance**

The chemical sites in central Germany have realised a “tremendous” restructuring and redevelopment since the beginning or the mid 90s. These immense challenges have led to excellent know-how in the following areas:

- Site Clearance and Redevelopment: Registering, evaluation, planning and implementation as well as the creation of clean settlement areas
- Demolition: project management for the redevelopment and the disposal of old chemical sites
- Environment Protection: Implementation of present EU and national directives, laws and regulations (air, water, soil, noise, waste), organisation of environment management and the ongoing monitoring of working processes.

### **3. Infrastructure and Facility Management**

Today, the sites have a modern chemical site infrastructure that is embedded in the modernised or newly developed regional and transregional transport and waste disposal infrastructure and raw material pipelines. These experiences of a complex infrastructure renewal have been collected by the experts of the particular sites. The practical solutions for an infrastructure management – property questions, models for waste disposal and transport infrastructure (road, rail and shipping) as well as full service offers by the site company or by specific infrastructure companies – are included in a performance catalogue.

### **4. Site Development and Marketing**

This module summarises the specific starting conditions for the privatisation and restructuring of chemical sites and the resulting site structures. The overall area of present framework conditions for chemical sites and enterprises (e. g. national, regional, site specific) have been taken into account.

The questions of site development (construction planning, expert reports) and the site administration in relation to the restructuring and new settlement of enterprises are covered in this module. Furthermore, the task for the site marketing, the acquisition and the project assistance of investors by the chemical site companies

are taken into account and the specific management concepts of the particular sites are summarised.

### ***5. Feedstock Co-operation***

The central German chemical triangle has a big raw material and synergy potential that is jointly used. A complex and direct access to raw material exists with the help of the feedstock cooperation inside and between the chemical sites in central Germany. The feedstock cooperation is an advantage, because it increases the settlement interest by high accessibility to raw materials. A performance catalogue presents the site offers and cooperation between the chemical sites and enterprises in the framework of the feedstock cooperation.

### ***6. IT Information Technologies***

The specific IT strategies that are related to the restructuring and development as well as the ongoing work of a chemical site have been summarised by the particular experts. The experiences and solutions for the implementation of modern information technology for the support of the complex task of site management, infrastructure, environment and safety management can also be used for other industrial sites. Necessary IT applications for the running of the site companies have been developed, such as GIS geographic information and documentation system, CAD system, fire brigade management system, facility management system, environment monitoring system.

### ***7. Human Resources Development***

The human resource development is in direct connection to the restructuring and modernisation of chemical sites. The specific needs and concrete measures for a human resource management during the transformation, a modern human resource marketing and specific human resource development programmes are covered in this module. Specific projects and initiatives have been developed in co-operation with the chemical sites and the enterprises with their regional partners in the administration, associations, education and research institutes, which have already proved their practicability behind the background of high demands for the employees in the chemical industry.

### ***8. Competence Development***

Due to their complexity, chemical sites are “learning organisations” that generally use, mediate and develop existing knowledge. Especially the bundling of knowledge and proficiency that are not belonging to the so called “core business” of the enterprises and site companies allow new synergy potentials. Hereby, the integration of chemical sites in the innovation landscape especially with universities and research institutes plays a growing role.

The establishment of a typical chemical site competence and knowledge management is a location factor from growing importance in the developing knowledge society.

### ***9. Financing and Support***

Typical chemical site financing solutions that increase competitive advantages in the innovation process have been worked out in this module. The chemical sites increase the stability of the enterprise development by delivering a secure raw material basis, value-added chains, integration into a working and modern infrastructure and the inclusion into existing enterprise networks. Starting from the

advantages of chemical sites, new approaches for the integration of chemical sites relevant qualitative evaluation criteria for the BASEL II rating procedure have been developed.

Another important point is the know-how of chemical sites in the new Bundesländer about the management of financial assistance and subsidies. This includes the strategic focus for the implementation of financial assistance, the use of financial instruments adopted for the chemical sites, innovative PPP Models as well as strategic use of efficiency criteria for the use of EU assistance.

### **10. Association and Chemical Sector**

The experts of the North-Eastern Chemical Associations – the Association of the Chemical Industry e. V. (VCI), sector North-East, and the Employers Association (AGV) North-East Chemistry e. V. - in co-operation with the chemical site companies have focused their specific know-how for the support of the transformation in the eastern German chemical industry. This includes especially tasks such as the representation of interest for enterprises, the forming of financial instruments and the influencing of the decision-making process at regional, national and European level.

### **11. Social Policy and Care**

The experts have summarised the related experience in a performance catalogue, such as aspects for the staff development and the sociable restructuring in chemical sites, enterprise specific agreements in the framework of the social partnerships in the chemical industry, juristic fundamentals, questions of social security and specific working safety.

This offer for a focused advising for instance about contractual agreements for working conditions, increasing transparency for site costs in the social area and the human resource adaptation in the restructuring process should give planning security for interested investors.

## **Questions for the European Partnership**

1. How do we support the cooperation of SMEs and big multinational enterprises on chemical sites and their integration into international markets?
2. How do we ensure the innovation capacities of enterprises located on chemical sites and their interaction with the research and development institutions?
3. Are there solutions to better financial access for enterprises on chemical sites that result from their advantages of network structures and synergy effects?
4. How can we support the exchange of experience and the international cooperation of chemical sites or even joint activities in the new Member States?
5. How do we support the development of chemical sites and use the experience of the transformation process in the context of higher international competition and enlargement?
6. What are innovative solutions for the Management of chemical sites in an European perspective

### **III. 2 Development and strengthening of cluster structures for the support of innovation**

The activation of regional potentials is becoming more important in a globalised economy with high competition between the regions. Therefore the capacity of a region to focus their forces on specific sectors and to establish a close cooperation between regional actors from enterprises, administration and science is a decisive factor for the regional development.

This idea of a close cooperation between several actors to create synergy effects and competitive advantages has been formulated by the economic theory of “Cluster Development” (Porter). A whole branch of publications has been circulating in the past and has formed the discussing for the regional policy. The establishment and the support of cluster structures has successfully found its way into the mainstream economic policies in several European countries and regions.

#### **Cluster process in Central Germany - Regionenmarketing**

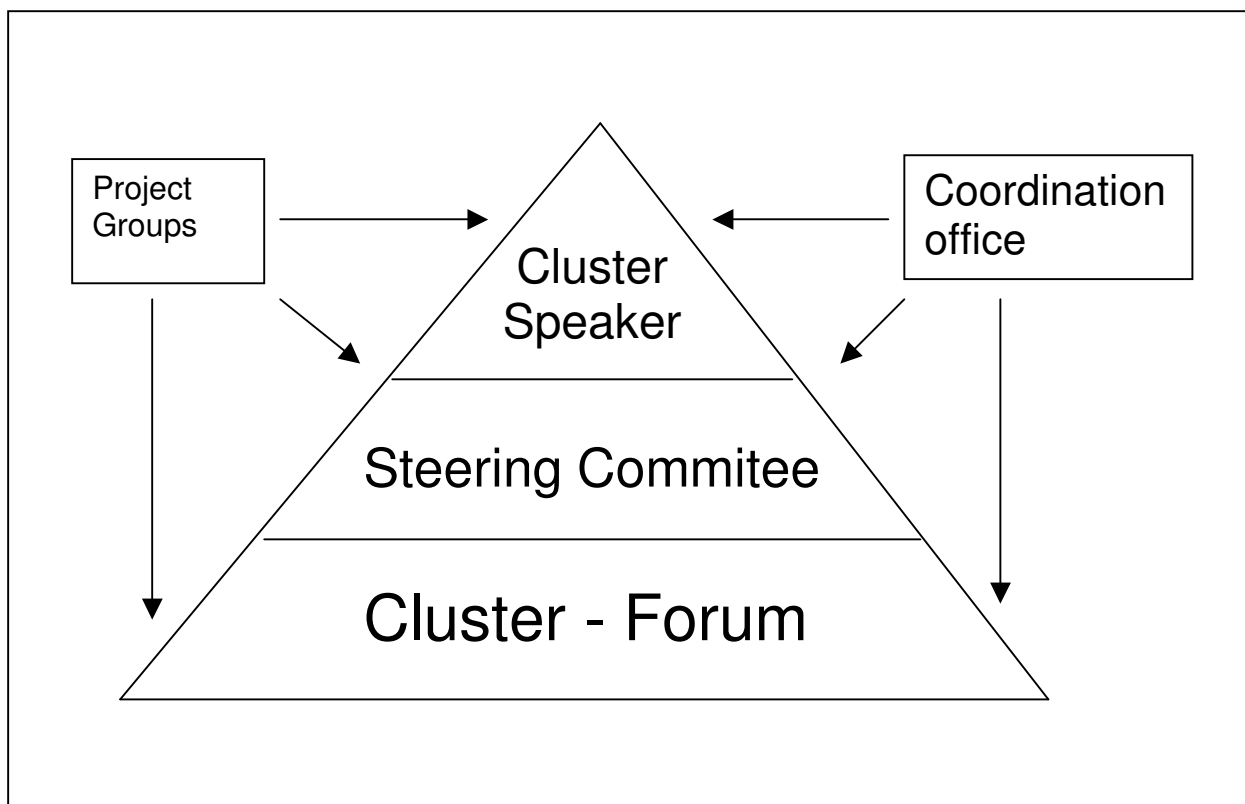
In Saxony-Anhalt this discussion has been actively promoted by the regional Forum Mitteldeutschland and the Regional Marketing Mitteldeutschland – “Central Germany” which unifies the three Länder Saxony, Saxony-Anhalt and Thuringia in the area around Halle – Leipzig – Dessau - Jena. Besides automotive and life science, the chemical cluster was one of the priority clusters that have been identified in the region.

The central German cluster process has been initiated by the Regionenmarketing Mitteldeutschland. It has the objective to improve the competitiveness and the innovation capacity of the regional economy. Seven sectors have been identified, where the critical mass of existing enterprises and research and development organisations is fulfilled. The supporting activities should be focused on these branches, which have already a high importance for the region and which have the best development perspectives. Furthermore, these clusters are characterised by a clear market leader, innovation or image leader:

The seven sectors are

- Automotive
- Biotechnology – Life Science
- Chemistry – Plastic
- Energy – Environment
- Food industry
- Media
- Information Technology

The cluster initiative has been founded by the most important companies in the region, that are the driving force for the cluster process. Also the financial resources are provided by the members. The cluster organisation aims to integrate all relevant actors into this strategy. The target groups are the regional governments, the universities and research and development agencies, the associations as well as the communities and cities.



The cluster process is coordinated by the Regionenmarketing, which is in close consultation with the respective actors of the relevant clusters and which is serving as a coordination office for the supporting and organisational activities. Each Cluster has elected a so called “Cluster Speaker”, who is the face of the cluster in the public and who is articulating the joint interest of the cluster to the outside world. The work of the cluster is guided by the steering committee, which is composed by high level representatives from enterprises, administration and science. A yearly organised congress and the cluster forum is used to bring together all relevant actors of the branches. ([www.mitteldeutschland.com](http://www.mitteldeutschland.com))

## Strategy dialog

As it has been described in the part 2 of the study, the chemical industry is one of the driving forces for the growth and employment in central Germany. This importance has been acknowledged by the regional politicians and the support of the chemical industry has always been one of the priorities of the economic policies in Saxony-Anhalt. On the other side local enterprises have realised the importance of cooperation and they are seeking for an active role in the cluster process.

A first outcome of this cluster process has been the establishment of the so called “Strategy Dialog Chemistry” between the regional government and the Association of the chemical industry. The strategy dialog was a joint effort by the administration and the enterprises to agree a long-term strategic policy for the support of the development of the chemical industry. Under the leadership of the Minister President, this dialogue has a high political priority. Several topics have been discussed such as

investment support, the settlement of new enterprises or the improvement of general framework conditions.

An important task of the strategy dialog was the formulation of joint political positions related to national or European legislation that effects the chemical industry. These common positions were then promoted by the regional government in the political debate at federal level in the Bundesrat (Federal Council) or directly with the European Commission. Therefore this dialog was an important way to formulate the regional interest towards other actors at different levels but also to bring the regional experience and knowledge into the multi-level decision making process to increase the practicability and efficiency of new policies.

### **CeChemNet – Cooperation of Chemical Sites**

Chemical enterprises, specialised service provider, research institutes and education institutes form the regional network „**CeChemNet - Central European Chemical Network**“, which can be seen as the core and the driving force of the cluster process in Saxony-Anhalt. The partner of the network are: InfraLeuna Infrastructure and Service GmbH, Dow Olefinverbund GmbH, Preiss - Daimler Chemiepark Bitterfeld - Wolfen GmbH, ZSG Zeitzer Standortgesellschaft mbH, SKW Stickstoffwerke Piesteritz GmbH, isw Gesellschaft für wissenschaftliche Beratung und Dienstleistung GmbH, der BVCT Bildungsverbund Chemie und Technik e.V. and the Association of the Chemical Industry– Landesgruppe Nord-Ost.

The approach of the network and the planned establishment of a competence platform “chemical site management” is based on the development of the chemical industry in central Germany, which is primarily concentrated on traditional chemical locations. All sites are characterised by a specific development scheme caused by the process of privatisation. The result of the transformation process is the development of a specific know how for the management of complex processes for the restructuring and the development of chemical sites.

These competences have been further systematically developed in a mutual exchange of experience. Approximately 100 actors from the working level of the participating project partners are involved in the project related 11 modules working groups. One important result of the cooperation process is the development of a service catalogue with “best-practice” solutions in the areas such as safety and security management, environmental protection and site clearance, Infrastructure and Facility management, site development and marketing, feedstock co-operation, Information technologies, human resource development, competence development, financing and support and social policy and care.

The forming of a typical chemical site competence and knowledge management is competitive advantage with growing importance in a developing knowledge society. Chemical sites are complex “learning organisations” that collect, mediate and develop knowledge. Especially the bundling of competences of the activities that are not part of the “core activities” of the enterprises and chemical site provider creates new synergy potentials. Therefore, the integration of the chemical sites in the innovation landscape especially to the universities and research institutes will play a bigger role in the future.

One of the core objectives is the stronger integration of the enterprises in international cooperation. On the basis of an intense exchange of experience and the cooperation of chemical regions of central and eastern Europe, existing competences should be used for international partnerships. This will ease the access to international network structures especially for small and medium sized enterprises on the chemical sites and can be used for the development of concrete projects of interregional partnerships.

### **Polykum e.V. – Polymer Cluster**

The association for the support of the development of polymers and plastic technology in central Germany – Polykum e.V. has the task to strengthen the cooperation between universities, research institutions and the small and medium sized enterprises in the polymer producing industry. It is the objective to promote transferable research potentials and to initiate cooperation for the production of competitive products and the use of new and innovative technologies.

Especially SMEs are confronted with a demanding and complex market, where the limits of small enterprises become obvious in the implementation of new processes and the development of innovative products. Small research and development capacities, the lack of qualified employees and the production of prototypes for the market are major problems. Therefore, Polykum aims to support these SMEs in the development of new products improvement of present products or technologies. The SMEs are closely cooperating with the regional research institutions to use their competencies and the existing research results.

For this purpose workshops for the dissemination of information and the establishment of contacts are organised. At the same time there is a constant information for SMEs about the work and the research focus of the scientific organisations, which is published on the website ([www.polykum.de](http://www.polykum.de)). Furthermore there are online information about the equipment of analysis devices as well as the technical equipment of the research institutes.

The specific objectives of Polykum are: Support of business contacts between the members, cooperation alongside the value added chain, from the special polymer to the processing technology and the innovative product, cooperation with scientific institutes and research organisations in central Germany to promote innovation, establishments of contacts to test laboratories in the regions for quality improvements and certification, cooperation with vocational training organisation for the qualification of employees, establishment of contacts for financial assistance, cooperation with existing networks, chemical sites as well as technology centres. The exchange of experience, the offer of research related services and the transfer of scientific solutions for products are objectives for a better use of regional potentials.

From special importance for the development and the processing of polymers in central Germany is the construction of the “Fraunhofer Demonstration Centre for polymer development and plastic processing” in the Value-Park in Schkopau, which will be finalised in the end of 2004. The Fraunhofer Institute IAP (Institute for Applied Polymer Research in Golm) and the IWM (Institute for Mechanics and Materials in

Halle) are managing the project, which is open for scientific institutions as well as for enterprises that often do not have own research capacities.

Furthermore a new technology centre for nano technology will be developed in Halle. The nano-technology is an important factor in the chemical industry for the development of new materials. Whereas typical nano-products are still located in the fundamental research, the number of products which are benefiting from nano-technology is increasing, such as flexible electronic.

### **Outlook**

The development of the chemical cluster is moving into a new phase. The two networks CeChemNet and Polykum have been financially supported by the Innovative Actions under the ERDF. This programme is now ending and the question needs to be answered how the existing and successful activities are now continued in the future.

For this reason Saxony-Anhalt is formulating a strategy for the development of cluster initiative for the chemical sector. This initiative should integrate the existing networks and activities such as CeChemNet, Polykum and the Strategy Dialog. Furthermore, it is discussed to develop other elements such as the interface Science – Economy for a better cooperation between research and enterprises, coordinated marketing activities and business support, which are focused on the chemical industry. The international perspective should be strengthened with a close cooperation with the European Chemical Regions Network and the initiative should also be kept open for the participation of other central German actors in Saxony or Thuringia in the context of the established cluster development of the Regionenmarketing.

The most important questions are now how to create structures and how to finance the future activities, with the contribution of the private enterprises and the support of the regional government. A conference about the innovation of the chemical cluster in Saxony-Anhalt should take place in autumn 2004 to agree on a joint concept. Therefore, Saxony-Anhalt is interested in learning from other regions about their best-practice solutions for the support of cluster processes.

### Questions for the European Partnership

1. How can we compare and benchmark the chemical cluster at an European level with the objective to identify success factors for the development of clusters?
2. How can we support the internationalisation of the chemical clusters in the region or the cooperation between the European clusters?
3. Which are successful policies and instruments to support the development of the Cluster? Which role is the regional authority playing?
4. What are best-practices for the establishment of Public-Private Partnerships in the cluster process? How can we activate the contributions of the private enterprises and combine it with public financial support?
5. How do we support the innovation capacity of the chemical cluster and the cooperation between research and development organisations and the enterprises?
6. How do we improve the cooperation between SMEs and big enterprises in the process of outsourcing? How do we ensure a high innovation capacity of the SMEs in this context?

### **III. 3 Innovative Approaches for the development of human resources**

Until 1990, the chemical industry has been the second biggest industry in East Germany, with a very high employment intensity (total employment 300.000 approximately 10% of the employment in the processing industry). Saxony-Anhalt – especially the south of the region – had a central position of the chemical industry. The area Halle – Bitterfeld – Merseburg was closely connected to chemical location in East Germany, with a long tradition reaching back to the beginning of the 20<sup>th</sup> century.

In this area, the production of about one third of all chemical products of the former GDR has been located. And more than 50% of the total employment in the chemical industry were concentrated in Saxony-Anhalt (about 155.000), representing one fourth of the industry employment and 10% of all employees in the region.

The reunification of Germany in the year 1989/90 has caused an abrupt, overall and deep economic and structural transformation process of the whole economy. A general review of the chemical industry has made clear, that due to deficits in the raw material base (brown coal) and the connected pollution of environment, the production sites, technologies and products, the organisation, the market relations and the market prices, above 50% of the present substance was not competitive at an international level. Therefore, many enterprises were shot down, efficient parts have been outsourced and restructured and new enterprises have been founded. Especially foreign investors have played a special role in this process. The general economic restructuring has successfully managed to diversify the mono-structures in the former chemical region.

Nevertheless, the transformation process has caused a sharp decline of employment in all economic sectors and especially in the chemical industry. Whereas in 1991 74.600 people were employed in the chemical industry in 1996 this number went down to 12.550 (DG24). This seems to be the bottom and today the employment is again constantly growing (see statistics in Part 2). Saxony-Anhalt has defended its position as leading location of the chemical industry in East Germany.

#### **The labour market in the transformation process**

The transformation process and the establishment of a modern chemical industry has been in the past and is today closely connected to challenges in the area of the relevant human capital and to the general problems of the regional labour market.

The following points summarise the particular main tasks, relevant framework condition, success and problems in the particular transformation phases and their experiences:

- The decisive reason for the successful redevelopment of the chemical industry was the political will from federal and regional government for the modernisation of the existing chemical locations in Saxony-Anhalt. This was

supported by the tradition, the regional capacities and the present human resources.

- Besides the public influence and financial assistance in the chemical industry, especially the constructive cooperation between the social partners in the long term transformation process had a positive impact. This was important as the general situation was in need of a long term consensus.
- The first critical situation was the immense reduction of employment of the big chemical enterprises in the beginning of the 1990s. This process should be socially acceptable in agreement with the social partners. Therefore, special units have been created to take over these tasks. Measures such as short work, early retirement, compensation payments and partial retirement have been used to reduce the employment. The financing of the social acceptable staff reduction came from the enterprises (social plan) and the federal employment office. The biggest part of the redundant employees were transferred to so call employment and qualification companies (“absorbing company”). They were working for one to three years to restructure the sold parts of the enterprise or to redevelop or abolish old enterprises to prepare the areas for new settlements.
- The so called absorbing company for former employees in the chemical industry were also responsible for the qualification and reintegration into the first labour market. Also these activities have been financed by private and public funds. The special challenge was the uniqueness of the unemployment problem. There was no preparation possible to react to the problem and at the same time new regulations had to be respected. In respect to the general collapse of the economy, it was also not clear which solutions and alternatives were sustainable for the labour market. The focus of the qualification was in the sector of environment protection and technology, commercial sectors or the new information and communication technologies. Unfortunately most of these efforts have not lead to a short term return to employment. Another task was the support of the formation of new companies.
- The absence of fast success and especially the slow creation of new employment in the middle of the 90s have shown that the publicly financed and cost intensive employment and qualification policy was not efficient and oriented towards the regional demands. After the termination of the work in the absorbing companies most of the people have not found a job. They were than often participating in public employment or qualification measures, but a respective employment demand could not be developed in the meantime. The consequence was the “parking of unemployed”. The employers have not positively perceived this development. A two year period in the public qualification companies or in unemployment was perceived as de-qualification for the first labour market.
- The reduction of employment has especially hit the research and development area. More than 50% of the employees with a university degree in the region Halle were working in the chemical industry, today there are only 2% (for west Germany a share of 10% is the average). Attempts to keep the existing research and development potential and to use it for the progressing restructuring was due to the missing framework conditions only in few cases successful.

From the present view there are several problems and deficits

- The several times completed employment and qualification phases were not coordinated regarding their objectives and the content. Therefore the personal added value (demanded competence growth) was very limited for the particular person. Furthermore, they did not succeed to further develop the existing human capital (starting from a high level) – with a consequence of a downgrading of employees. Today it becomes obvious that a sound preparation regarding the employment demands for the modern chemical industry did not take place, out of two main reasons:
  1. Qualification has been completed much too isolated from the enterprise practice, caused by the missing working and training capacities of the industry
  2. Bad quality of the content and methods of the public financed qualification measures

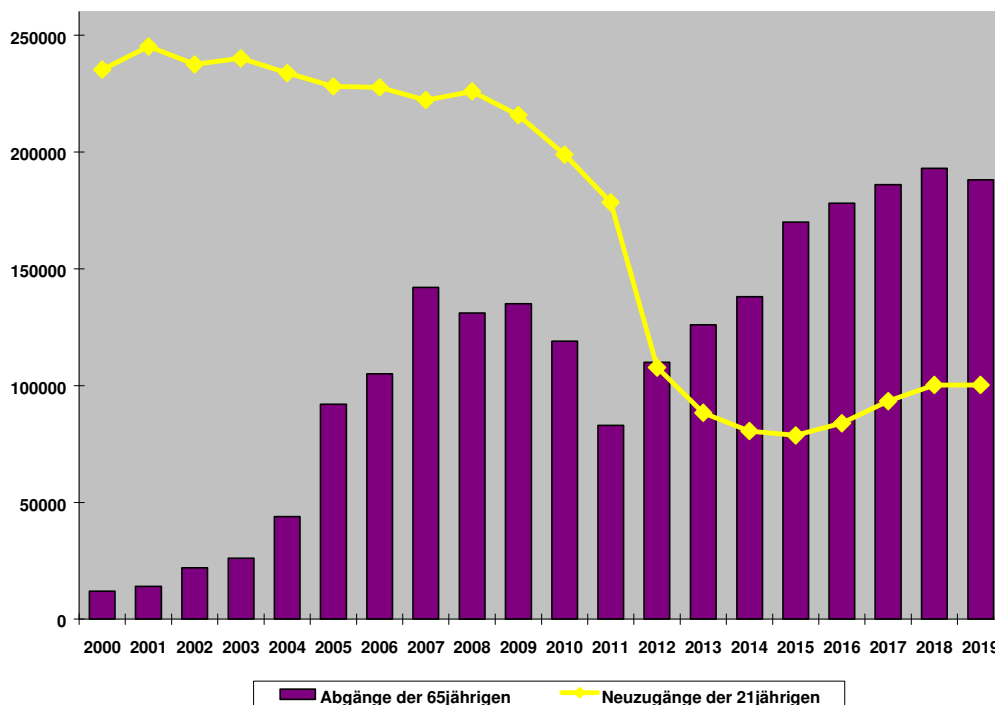
These are the main reasons for the criticism of the employers about the qualification and the insufficient orientation to the practice in the enterprises. This situation has been described as a “dead end”. Nevertheless it needs to be stressed that these measures had also an importance to secure the social peace.

After 15 years we have reached a situation, where the biggest share of the former employees in the chemical industry are retired or in the early retirement with an age above 58 years, which prevents a reintegration to the regular labour market. Other former “chemists” are working in other branches or in other regions. The smaller remaining share has due to the above described circumstances lost their connection to the technological progress. They form – across all branches – the high and further growing stock of long-term unemployed. Therefore the number 600 unemployed qualified people for the chemical sector (with university or college diploma) in Saxony-Anhalt needs to be taken with caution. In Germany there is a total stock of unemployed chemists and chemical engineers of 5.610, where 2000 are located in East Germany.

### **Present Challenges for the Human Resources**

Besides the strong reduction of employment in the chemical industry, today we can see a stable and positive development of productive and competitive employment. The expanding enterprises in the Halle region are creating new jobs and are confronted with a new problem: the shortage of qualified employees and young people. On the one side this is caused by the above described developments (which have negatively influenced the image of the perspective in the chemical industry). On the other hand the demographic development is worsening the situation. In the coming years older employees will leave the enterprises, where no sufficient replacement is available.

## Replacement demand in East Germany from 2000 to 2020



(Source: VCI Nordost)

The decision to learn a typical chemical job has no special attractiveness, which is relevant for whole Germany. Furthermore especially young graduates are often leaving East Germany for a better paid job with more perspectives.

In facing the new shortage of labour force and in taking account the past experiences, the enterprises and the chemical location in Saxony-Anhalt have developed a new approach, that is focusing on the following points:

- There is a regionalised, intensive and broad public relation policy to win the interest of adequate trainees and students, especially also women. This is implemented in measures such as “open days”, special exhibitions, traineeships for pupils for a competent job orientation.
- For the demand adjusted training of the young employees especially qualification and study forms are preferred that are close to the enterprise, such as the dual training, enterprise academies, traineeships or job related qualification for concrete investors.
- Transfer of graduates after their first vocational training to a employment reserve pool if they are not finding a job in their mother enterprise. This should secure the connection to the regional enterprises, compensate short term employment demands and a permanent further training.
- Participation in the process of formation and specification of chemical relevant job profiles and qualification standards and concepts.
- Close cooperation with universities and vocational colleges for the support of particular theses or students trainees as well as the formation of topics for research projects in the cooperation between science and practice.

- Development of specific teaching materials for a training in networks (also online) in chemical or chemical related jobs as well as the harmonisation of qualification and training measures towards European standards.
- Use and extension of cooperation networks in the region and trans-regional for a practice and enterprise oriented vocational training and qualification, with the objective to improve the education quality. the development of trans-vocational and additional qualifications and the integration of trainees from enterprises in insolvency.

The human factor will become more important in the future, especially the foreseen gap of young and qualified people will force the enterprises of the chemical industry to develop preventive strategies for the support of sufficient human resources that ensure innovation and growth.

### Questions for the European Partnership

1. How do the partners organise their policy against unemployment to fight against the loss of human capital?
2. Which forms of vocational training have proved their success in the partner regions?
3. How does the partner secure their future employment in the chemical industry? How do they react to the challenge of demography and the inclusion of older employees?
4. How are new technologies, working methods and learning cultures integrated in the particular enterprises to ensure a high flexibility and innovation?
5. How do the regions support the research and development competencies?
6. Which policy has proved their success in concerning the support of SMEs and their employment situation?
7. How is the cooperation between enterprises, science and mediators? Are there specific networks to support the development of human resources?