

# **Best Practice Solutions of Chemical Logistics in Central and Eastern Europe**

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## Imprint

ChemLog Best Practice Analysis

Best Practice Solutions of Chemical Logistics in Central and Eastern Europe

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It has to be adverted that though elaborateness neither the authors nor the editor take responsibility for the correctness of the underlying data and statements in the study.

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## Table of Content

1	Introduction to the Best Practice Study .....	1
2	Structure of the Template .....	2
3	Best Practice Cases .....	4
3.1	Best Practice Cases from Austria .....	5
3.2	Best Practice Cases from Hungary .....	13
3.3	Best Practice Cases from Slovakia .....	18
3.4	Best Practice Cases from Italy .....	23
3.5	Best Practice Cases from Czech Republic .....	26
3.6	Best Practice Cases from Germany .....	38
3.7	Best Practice Cases from Poland .....	43
4	Summary .....	56

## 1 Introduction to the Best Practice Study

ChemLog represents a project, which aims to strengthen the overall competitiveness of the Chemical Industry by improving the framework conditions for Logistics in Central and Eastern Europe. In order to reach this primary goal, several sub-objectives had been stated at the beginning of the project. Among these future achievements, one implied the transfer of transnational know-how and technology in respect of the development of efficient logistics systems. Therefore, prior to this Best Practice Analysis, a SWOT Analysis was carried out in 2009. Regarding to this first analytical phase, which was an element of the work package 3 – Analysis and Exchange of

Experience and the main input for the upcoming work packages such as Investment Preparation and Strategy Development – the involved project partners had to identify the strengths, weaknesses, opportunities and threats within their regional Chemical Industry and chemical logistics respectively. Moreover, an agenda of needs for future actions and improvements represented the conclusion of the SWOT Analysis and, of course, the basis for the implementation of feasibility studies in work package 4.

In Table 1 objectives of the SWOT Analysis and the Best Practice Study are summarized.

SWOT Analysis	Best Practice Study
<ul style="list-style-type: none"> <li>Analyse the current situation of Chemical Industry in each partner region</li> <li>Identify strengths, weaknesses, opportunities and threats of chemical logistics in the partner regions as basis for exchange of experience</li> <li>Develop a description of chemical logistics to have a common understanding of current situation</li> <li>Identify regional needs and future potential areas for cooperation and implementation of feasibility studies</li> </ul>	<ul style="list-style-type: none"> <li>Deeper analysis of best practice solutions in the area of chemical logistics</li> <li>Discussion of potential for the transfer of experience as basis for mutual learning</li> <li>Show opportunities for further cooperation</li> </ul>

Table 1: SWOT Analysis and Best Practice Study

Subsequently to the SWOT Analysis, the next step was to identify and deeply analyse Best Practice Solutions for exchange of experience and to provide the results for the work package 4 “Investment Preparation”. Ahead of the Best Practice Study, a joint template had been created in order to consolidate the information in a structured way. This type of template will be described in detail afterwards. However, the primary objectives of the Best Practice are as mentioned in Table 1.

Especially the demonstration of different projects in the field of chemical logistics and the transfer of the available information of these Best Practices are the main pillars in this second analytical phase. In table 2 an overview of all Best Practices collected is given.

## 2 Structure of the Template

As mentioned before, all ChemLog project partners received a template as a supporting tool for analyzing their individual Best Practice Solutions. This template follows a logical structure and includes all required information and

indicators about a Best Practice Case. However, on the basis of this following structured template, the Best Practice Solutions were analyzed as follows:

First of all the project partners have to state the basic information of the regarding project.

**BASIC INFORMATION OF THE BEST PRACTICE (BP)**

Title of Best Practice	
Project Leader	
Project Partner	

Figure 1: Joint Template - Part 1

*Including contact information*

**TAGGING**

1. Overall area of BP	2. Detailed area of BP	3. Involved transport modes
<input type="checkbox"/> Industry internal (also between branches)	<input type="checkbox"/> Planning <input type="checkbox"/> Sourcing <input type="checkbox"/> Production <input type="checkbox"/> Distribution <input type="checkbox"/> Other...	<input type="checkbox"/> Road <input type="checkbox"/> Railway <input type="checkbox"/> Waterway <input type="checkbox"/> Intermodal <input type="checkbox"/> Pipeline
<input type="checkbox"/> Industry cooperative	<input type="checkbox"/> between chemical companies <input type="checkbox"/> between chemical company and LSP	<input type="checkbox"/> Road <input type="checkbox"/> Railway <input type="checkbox"/> Waterway <input type="checkbox"/> Intermodal <input type="checkbox"/> Pipeline
<input type="checkbox"/> Logistic Service Provider (LSP) and infrastructure	<input type="checkbox"/> Only between LSP or initiated by LSP <input type="checkbox"/> Initiated by Public Authorities <input type="checkbox"/> Both	<input type="checkbox"/> Road <input type="checkbox"/> Railway <input type="checkbox"/> Waterway <input type="checkbox"/> Intermodal <input type="checkbox"/> Pipeline

Figure 2: Joint Template - Part 2

Secondly, the person concerned need to tag the area in which the Best Practice Case fits. Here, there are three layers for selection:

1. Overall area of BP
2. Detailed area of BP
3. Involved transport modes

**DETAILED DESCRIPTION OF THE BEST PRACTICE (BP)**

Definition of project or BP	Max 1000 characters Please define the BP in a short summary
Initial situation / issues	Max 2000 characters Please describe initial situation, what are the problems and the framework conditions?
Objectives	Max 2000. characters What are the objectives of the BP in the short and long term?

Figure 3: Joint Template - Part 3

After tagging, a detailed description of the relevant Best Practice, the project partner has to indicate the

- definition,
- initial situation or issue,
- objectives,
- legal and financial framework
- etc.

Moreover, a maximum of characters is quoted in order to give an orientation about the scope of the BP.

Further on some key information have to be stated. This section of the template deals with the results and evaluation of the Best Practice. Especially, the distinction between hard (measureable) and soft facts (non-measureable) facts is important.

#### RESULTS AND EVALUATION OF BEST PRACTICE (BP)

<i>KPI (hard facts) (e.g. leadtime, costs of logistics, customer satisfaction, increase in turnover, etc.)</i>	<i>Max 2000 characters What are quantitative measurable key performance indicators derived from the BP?</i>
<i>Success factors (soft facts)</i>	<i>Max 1000 characters What are qualitative factors or so-called "soft facts" arisen from the BP?</i>

Figure 4: Joint Template - Part 4

Finally, the lessons learnt and, of course, some additional information about the Best Practice Solution described needs to be written down in order to obtain a link or access to more information of this BP.

#### LESSONS LEARNT

<i>Difficulties encountered</i>	<i>Max 2000 characters</i>
---------------------------------	----------------------------

#### INFORMATION AVAILABLE ABOUT THIS BEST PRACTICE

<i>e.g. Homepages, papers etc.</i>	<i>Max 1000 characters</i>
----------------------------------------	----------------------------

Figure 5: Joint Template - Part 5

### 3 Best Practice Cases

Country	Best Practice Cases
<b>Austria</b>	Development of a Distribution Network for Fertilizer and Melamine
	Supply Chain Management – Accompaniment of a Start-up
	Optimization of Logistics Processes by Setup of a Company-owned Warehouse Facility for Hazardous Goods
<b>Hungary</b>	Presenting the Railroad Traffic Informational System (RTI)
	SQAS Packaged Warehouse in ADR Logistics Ltd.
<b>Slovakia</b>	New Modern Fluids Transshipment Facility at Ukrainian Border
	New Packing and Load Securing Procedure for Palletized Chemicals in Paper Bags transported in Semi-Trailers and Containers by Road, Rail and Sea Transport
<b>Province Novara</b>	Development of a Transport Concept for Incoming Raw Materials in Novara Production Complex of Radici Group
<b>Czech Republic</b>	The Problems of Transport of Chemicals in the System of Combined (Multimodal) Transport
	The Utilization of Elbe Waterway for Transport of Chemicals
	Railway and Road Corridors, their Building up with respect to the Transports of Chemicals
<b>Germany</b>	Centralized Logistics for Plastics Granulates at the Dow Site in Schkopau
	The Dow ValuePark Concept for Integration of Logistic Service Providers in Chemical Sites
<b>Poland</b>	Systems Supporting Selling and Transport Management in Chemical Distribution
	Safety & Quality Assessment System (SQAS)
	River Information Service (RIS) for Inland Waterway
	The Change of the Company's Work Organization (Rail Tank Cars Delivery)
	The Best Practices within the Development Scope of Transmission Infrastructure (Pipelines) for Raw Materials and Chemical Products


Table 2: Overview of Best Practice Cases

### **3.1 Best Practice Cases from Austria**

ChemLog Project Partner:

*FH OÖ Research and Development GmbH / Logistikum Competence Centre*



Development of a Distribution Network for Fertilizer and Melamine			
			
Project Leader <b>Borealis AG</b> Dr. Klaus Hofstadler, Head of Material Handling Linz and Piesteritz St.-Peter-Straße 25 A-4020 Linz		Project Partner <b>Industry Internal – no Project Partner</b>	
TAGGING	Overall area of BP <b>X Industry Internal</b>		
	Detailed area of BP <b>X Distribution</b>		
	Involved transport modes <b>X Road</b> <b>X Waterway</b>		
Country <b>Austria</b>		Timescale <b>Start: September 2007</b> <b>End: August 2008</b>	

## THE BEST PRACTICE CASE

Borealis is a leading provider of innovative, value creating plastics solutions for the infrastructure, automotive and advanced packaging markets across Europe, the Middle East and Asia. Borealis is placed worldwide close to their key customers within Europe, South and North America, the Middle East and Asia. In 2006 OMV and IPIC consolidated the chemistry activities and announced the incorporation of their respective 50% shares of Agrolinz Melamine International (AMI) into their joint subsidiary Borealis.

Borealis Agrolinz Melamine GmbH in Linz produces base (melamine, fertilizer products) and special chemicals (Calcium Ammonium Nitrates, Ammonia, Urea, Guanidine Carbonate, etc.) After becoming member of the Borealis Group in August 2007, Agrolinz Melamine International decided to reintegrate logistics activities. Another reason for backourcing the coordination of warehousing and transport was

the founding of the Linzer Agro Trade (LAT). This means that from this point in time, warehousing and transportation has been part of the core processes and the company was in charge to organize the distribution of their products by itself.

Up to now trade activities have been taken shape and lived by the company. It was a strategic decision to find a new definition of the logistics requirements. As Central and Eastern Europe is the most important growing market, especially for fertilizer and also relevant for melamine, the company put high focus on building up a functioning warehousing and transportation network.

## INITIAL SITUATION

As part of the Commodities, the company faces high-cost pressure due to huge differences in costs for raw materials and wages. As an interior production site, raw materials have to be

sourced over long distances as suppliers are situated globally and there is a high difference in wages within Central and Eastern Europe.

From the logistics point of view the location of the production site is challenging. Often value-added services, which are not part of the core competences, are shifted to Eastern Europe due to cost issues. Furthermore barriers like underdeveloped infrastructure and availability of adequate mode of transport in CEE countries challenge the design of a distribution network.

## OBJECTIVES

- Support of the trade organization, the Linzer Agro Trade (LAT), by developing a distribution network for melamine and fertilizer
- Selection of adequate and dedicated warehousing facilities and sites
- Design of a distribution network with the best possible integration and utilization of inland waterway as well as on-carriage processes
- Central coordination in Linz and cooperation with regional partners

## FINANCIAL AND LEGAL FRAMEWORK

Due to fact that this is a company internal project, the financial and legal framework is unessential.

## RESULTS AND EVALUATION

- Communication processes are shorter and more direct (from the sales man to the transport organization – everything in one hand).
- Data and key figure analysis as well as data mining are easier due to SAP support
- Interface difficulties are solved as information is available in one data base
- Higher cost transparency lead to higher cost awareness

## LESSONS LEARNT

The scheduling of resources, especially of human resources has to be planned exactly and thoughtful. Whenever realizable, the project's lead time shall be as short as possible and external resources shall be consulted. Project leaders are advised to focus the well-timed recruiting of employees and logistics staff for the implementation of the project, as the time to employment has to be taken into consideration.

## ADDITIONAL INFORMATION

[www.agrolinz.com](http://www.agrolinz.com)

## Supply Chain Management – Accompaniment of a Start-up



### Project Leader

#### LSA – Logwin Solutions Austria GmbH

Reinhold Pölzl, Director Quality, Safety and Environment  
Hafenstraße 77  
A-3500 Krems

### Project Partner

#### BDV – BioDiesel Vienna GmbH

Ewald-Marco Münzer and  
Michael Münzer, Managing Directors  
Ölhafen Lobau - Uferstraße 12  
A-1220 Wien

### TAGGING

#### Overall area of BP

**X Logistic Service Providers (LSP) and infrastructure**

#### Detailed area of BP

**X Only between LSP or initiated by LSP**

#### Involved transport modes

**X Road**  
**X Railway**  
**X Waterway**  
**X Intermodal**  
**X Pipeline**

#### Country

**Austria**

#### Timescale

**Start: Beginning 2006**  
**Signing of Contract: 06/2006**  
**Implementation of Single Sourcing: 2006/07**  
**Implementation of Multi Sourcing: 3Q 2007**

## THE BEST PRACTICE CASE

Logwin is a Logistic Service Provider (LSP) which is focused on contract logistics as well as on air, ocean, road and rail transport. The company's headquarter is located in Luxembourg and has subsidiaries all over the world. BioDiesel Vienna is the biggest and state-of-the-art production facility of biofuel in Austria. Logwin Solutions Austria was contacted by BioDiesel Vienna to build up the whole supply chain from the procurement of the raw materials to the distribution of the final product. This Best Practice Case deals with the successful conception, control and execution of a supply chain for a start-up company

## INITIAL SITUATION

After implementing a new technology, called BioDiesel International (BDI) multifeed stock, in the newly constructed facility, the first step to be taken was to ensure the right quantity and quality of raw materials. This was highly important for the proper operation as well as for the downstream obligations to take delivery.

In this context the needed logistics requirements on site were selected in an efficient way in order to allow an integration of different transport modes, e.g. railway, inland waterway, road and pipeline.

The tasks for the supply chain organization were and still are:

- Determination of the proper mix of transport modes and their optimal utilization
- Contribution to the selection of the general sourcing strategy
- Design of the required infrastructure in respect to logistics facilities
- Accompaniment of the start-up in terms of starting operations and also the optimization of the running business
- Implementation of a continuous improvement process (CIP).

## OBJECTIVES

- Setup of the required Supply Chain Know-How
- Establishment of the needed transport fleet
- Working out the Supply Chain data for a successful contracting with the suppliers
- Assistance in the production planning in respect to the needed material handling system
- Selection of qualified Supply Chain Partners
- Enlargement of the sourcing radius
- Integration of alternative transport modes in terms of incoming and also of outgoing goods
- Establishment of a best in class Supply Chain / Information Chain
- Optimization of the distribution performance
- Finding alternative raw materials due to an expansion of production (new proceeding, diversification of production)

## FINANCIAL AND LEGAL FRAMEWORK

The legal framework is represented by a regulation released by the EU (Regulation 2003/30/EG). Furthermore it has to be stated, that the EU supports the utilization of renewable feedstock. The financial and legal framework concerning this project is based on a cooperation agreement.

## RESULTS AND EVALUATION

- Reduction of lead time
- Improvement of order fulfilment
- Increase in performance on information
- Organisation of a 24 hour Hotline
- Supply Chain desk
- Coordination of shunting
- Accelerate networking
- Integration of suppliers and customers
- Customer accreditation

## LESSONS LEARNT

This issue of the Best Practice Case was divided into different transport modes. Here, the challenges and problems and finally the lessons learnt in connection with each mode are mentioned.

### Inland Waterway

First of all the availability of tanker requires long-term contracting as well as a defined level of purity due to the adhesion characteristics of the product. The transport mode inland waterway is highly different to the others, because tankers are driven by turnover. From an economical point of view, business with one-way transports are fairly challenging in terms of dealing. Finally the problem with the material mix in context with inland waterway plays an important role too.

## **Railway**

A considerable obstacle represents the current status of the infrastructure in Eastern Europe. This situation does not allow companies to monitor the runtimes and implicates risks of transportation (e.g. punctual availability of wagons). Furthermore purification is essential due to the product characteristics which also require a specific quality of the wagons. The next challenges in context with railway are the delivery performance and the influence of the transportation of passengers.

## **Road**

In connection with road transport, there are two experiences mentioned. Firstly the high level of specialisation due to refinery products (only few suppliers on the market) and secondly and again the problem with one-way transport requires solutions in the near future.

## **ADDITIONAL INFORMATION**

[www.logwin-logistics.com](http://www.logwin-logistics.com)

[www.biodiesel-vienna.com](http://www.biodiesel-vienna.com)

## Optimization of Logistics Processes by Setup of a Company-owned Warehouse Facility for Hazardous Goods



*Project Leader*

**Nufarm GmbH & Co KG**

Mag.(FH) Heidelinde Luksch, Logistics Manager  
St.-Peter-Straße 25  
A-4021 Linz

*Project Partner*

**Industry Internal – no Project Partner**

**TAGGING**

*Overall area of BP*

**X Industry Internal**

*Detailed area of BP*

**X Other**

*Involved transport modes*

**X Road**

*Country*

**Austria**

*Timescale*

**Start: 3<sup>rd</sup> Quarter 2007**

**Opening: 3<sup>rd</sup> Quarter 2009**

### THE BEST PRACTICE CASE

The Nufarm GmbH & Co KG in Linz, Austria, was founded in the course of the take-over of the pesticides activities from the former Agrolinz Melamine International. The company is a subsidiary (100%) of the worldwide situated Nufarm-Group with its headquarter in Melbourne, Australia. In Linz, both chemical agents and finished goods are produced as well as important license products for nameable producers of pesticides.

### INITIAL SITUATION

As the Nufarm production site in Linz is located within a chemical industrial park, the existing warehousing facilities of DSM-Fine Chemicals Austria could be shared by Nufarm in order to store hazardous goods. Due to the fact that DSM had to face capacity bottlenecks and there were no other possibilities to store goods at the chemical industrial park, Nufarm had to outsource warehousing to external providers.

The hazardous intermediates and finished goods were stored at several warehouses in the surrounding region of Linz. Numerous locations mean that dangerous intermediates and goods have to be transported several times between the production site and the warehouse facilities and pose safety risks. Furthermore the suboptimal situation did not fit the company's strategy, meaning that the production is developing more end-user oriented and the handling of goods from raw materials to intermediates or finished products shall be done internally.

The company decided to build their own warehouse dedicated for the specific demands, directly near the production facility. About 6,500 chemical goods, non-hazardous and hazardous, can be stored. At the same time a Warehouse Management System (WMS) was implemented to optimise processes in terms of information logistics.

## OBJECTIVES

- Reduction of the number of transports and interfaces
- Decrease of handling processes
- Improvement in safety and security due to reduced handling of dangerous goods
- Achievement of higher transparency

## FINANCIAL AND LEGAL FRAMEWORK

Due to fact that this is a company internal project, the financial and legal framework is unessential.

## RESULTS AND EVALUATION

- Reduction of damages
- Less difficulties with dangerous goods transports
- Cost advantages
- Shorter lead time
- Optimization of order processing due to centralization of warehousing activities
- Reduction of interfaces

- Higher level of transparency
- Implementation of Warehouse Management System enables data actuality and reliability
- Lower workload for sales people

## LESSONS LEARNT

The regulatory processes in context with the construction of a dangerous goods warehouse are highly bureaucratic and time-consuming. As the company is situated in a chemical park, the security standards within this area have to be taken into consideration, especially by external parties. During project handling the integration a selection of external experts is essential and the recruiting of staff for the implementation phase has to be considered.

## ADDITIONAL INFORMATION

[www.nufarm.com](http://www.nufarm.com)

## 3.2 Best Practice Cases from Hungary

ChemLog Project Partner:

*Regional Development Holding, Budapest*



## Presenting the Railroad Traffic Informational System (RTI)



### Project Leader

**MÁV Informatika Kereskedelmi Szolgáltató és Tanácsadó Zrt. és a MÁV Tervező Intézet**

Head of the department  
Krisztina krt. 37/A.  
HU-1012 Budapest

### Project Partner

**MÁV Zrt.**

Head of the Department  
Pf.: 56  
HU-1426 Budapest

### TAGGING

#### Overall area of BP

**X Logistic Service Provider (LSP) and infrastructure**

#### Detailed area of BP

**X Only between LSP or initiated by LSP**

#### Involved transport modes

**X Railway**

#### Country

**Hungary**

#### Timescale

**Start: October 2004  
End: June 2011**

## THE BEST PRACTICE CASE

MÁV Ltd. represents the former state-owned railway company in Hungary. The ongoing rail liberalization process within the EU had an important influence on MÁV Ltd. as well as on the domestic and international private railway companies. The appearance of private railway companies induced MÁV Ltd. to strengthen the services provided to their customers.

Therefore MÁV Ltd. developed a Railroad Traffic Informational System (RTI) in order to increase the efficiency of the internal processes, to achieve closer cooperation with international partners, to improve their service level and to develop information and communication technologies.

### INITIAL SITUATION

In 2003, the MÁV Ltd. Traffic Management developed conceptional plans for the Railroad Traffic Informational System (RTI), which implicated – based on the EU's directives – that MÁV Ltd. has to be a reliable partner in terms of

providing a competitive traffic informational system. These plans involved two major points:

- Granting quick and prompt responses in the process of acknowledgement
- Providing prompt traffic capacity reporting

In order to reach these requirements, all railways had to be traced, the information needed to be gathered and finally this information had to be forwarded by a capable system. Regarding this system, the following functionalities were mentioned

- Tracing and registration of the real departure and arrival time of the trains
- Allocation of annual time-tables and publication of all alterations during the year
- Handling of short-term train operations
- Quality assurance for operations within railway traffic
- Analysis of traffic performances

## OBJECTIVES

- Development of a Railroad Traffic Informational System (RTI)
- Route directing through this system
- Evaluation of performance
- Assurance of quality within the processes
- Support of the interoperability between railroad traffic dispatching systems
- Supply needed information for management information systems

## FINANCIAL AND LEGAL FRAMEWORK

The development costs for the RTI software are 1.64 billion HUF, which contains the expenditures for performing the needed and planned functionalities, the modifications of the connected systems and the support of site testings in order to implement the operations.

At the initial periode of this project, three alternatives of funding were presented:

**Alternative A:** The system is financed by the RTI project. In this case the total hardware costs amounts to 1.4 billion HUF.

**Alternative B:** Here, the already existing systems of MÁV Ltd's SZIR improvement project were taken into consideration. In this case the total hardware cost are 0.8 billion HUF.

**Alternative C:** This option is similar to B, but the number of working stations was reduced significantly. In this case the total hardware costs are: 0.5 billion HUF.

Ultimately, alternative C was chosen. For this, EU financial support was also used. In the year 2005, the parliament prepared the CLXXXIII. decree concerning domestic traffic politics and integration of the domestic rules into the international traffic system. A further target of that decree was to improve the environmental goal settled for the railroad traffic and to improve the security on railroads. This decree represents the legal framework for this project and was modified in 2009.

## RESULTS AND EVALUATION

The setup of the whole informatical structure was performed over more than 100 development years, and due to the railroad specifications, only a part could be used for standard developing processes. The planned system architecture is diverse and unstable. The business information claims are not that clear, hence further specifications are necessary. In this context the comprehension and gathering can be hardly obtained from the operational specialities.

- Critical role of the system users in the future, their business communication skills and as well as the commitment to this railroad traffic management project
- Mutual understanding and avoidance of language barriers between users and experts
- Guarantee of good cooperation between the workers of railway companies and experts
- Improved environmental utilization of railway transportation in regard of growing efficiency

## LESSONS LEARNT

After implementing the RTI system, the development of security systems should take the RTI information, which has to be served by the security technologies, into consideration. With the use of information, which is referred to all railroutes, the dispatching operational efficiency will grow continuously.

## ADDITIONAL INFORMATION

Relevant documents, essays:

- Manageability treatise for the development of Railroad Traffic Informational System (RTI)
- Tender Data Sheet's of Railroad Traffic Informational System (RTI)

## SQAS Packaged Warehouse in ADR Logistics Ltd.



### Project Leader

#### ADR Logistics Ltd.

Balazs Zeher, CO  
Akácliget Logisztikai Központ, Hrsz.: 7000/9.  
HU-2360 Gyál

### Project Partner

#### Hungária Dangerous Goods Engineering Ltd.

György Sárosi, ADR adviser  
Nagykőrösi út 349.  
HU-1238 Budapest

### TAGGING

#### Overall area of BP

**X** Logistic Service Provider (LSP) and infrastructure

#### Detailed area of BP

**X** Only between LSP or initiated by LSP

#### Involved transport modes

**X** Road

#### Country

**Hungary**

#### Timescale

**Start: May 2008**  
**End: November 2011**

## THE BEST PRACTICE CASE

The Akácliget Logistics Park has been established in the agglomeration area of Budapest. In the crossing point of M5 and M0 motorways 18.418 m<sup>2</sup> of leasable area and 24 lease units (as a part of a warehouse) are provided. During the planning and construction of former leasable units the SEVESO II guidelines were major aspects.

The ADR Logistics Ltd. is located in the leasable units number 9-14, whose major objective is the storage of chemicals and dangerous goods. In the year 2009, this company acquired the auditing of SQAS (Safety and Quality Assessment System) which represents a standard released by CEFIC.

### INITIAL SITUATION

SQAS is a system to evaluate the quality, safety, security and the environmental performance of Logistic Service Providers (LSP) with single assessments by individual chemical companies.

It helps companies to select new Logistic Service Providers and offers a tool for evaluating continuous improvement. Therefore SQAS is a key element of responsible care applied to logistics operations.

A SQAS assessment does not lead to a certificate, but offers a detailed factual assessment report. Each chemical company has to be evaluated according to its own requirements. The system provides information on the strengths and weaknesses observed during the assessment. After the evaluation of the auditing report, the chemical company can offer specific feedback to the Logistic Service Providers. They are able to add and maintain the progress on their improvement action programme in the system. This helps in building up a mutual beneficial partnership.

CEFIC has developed five specific SQAS questionnaires for different types of Logistic Service Providers and chemical distributors in close cooperation with the involved industry sectors:

- Transport Service
- Tank Cleaning
- Packaged Warehouse
- SQAS Rail
- SQAS Rail Tank Cars (RTC) Workshop

The Packaged Warehouse module has been developed to assess the storage and handling activities in packaged warehouses, with emphasis on fire protection management.

The questionnaire also includes auxiliary services often provided at packaged warehouses, like filling and blending operations of liquid products and the loading/unloading of bulk solids.

## OBJECTIVES

- Encouragement of communication between LSP and chemical companies on the basis of the assessment results
- Assistance in selecting new LSP
- Providing detailed feedback (strengths and weaknesses) of the chemical company's needs to the LSP
- Building up a partnership

## FINANCIAL AND LEGAL FRAMEWORK

The costs of preparation the warehouse for SQAS audit were fairly low. The reason is that

the whole warehouse was built in respect of severe regulations and restrictions.

The construction and operation of the storage completely fits the Hungarian and European regulations. The SEVESO II safety regulations represent the major legal background. The warehouse follows fire protection, security and environmental regulations.

## RESULTS AND EVALUATION

- Minimization of risks for partners due to modern and save storage facilities, equipment and transport vehicles
- Provision of high quality services

## LESSONS LEARNT

The warehouse has a very high technology. For this reason the warehouse did not need more construction during the preparation of the SQAS audit. The development was implemented in the management side. We tried to introduce the Behaviour Based Safety. It was very difficult, because there are not any warehouses in Hungary who can introduce this safety regulation completely. Otherwise these safety regulations are one of the critical points in the whole assessment system. We should improve the Behaviour Based System for the next audit, which will be in the year 2010.


## ADDITIONAL INFORMATION

[www.adr-logistics.hu/](http://www.adr-logistics.hu/)  
[www.alk-logistics.com/](http://www.alk-logistics.com/)

### **3.3 Best Practice Cases from Slovakia**

ChemLog Project Partner:

*Association of Chemical and Pharmaceutical Industry of Slovak Republic*

New Modern Fluids Transshipment Facility at Ukrainian Border			
			
<i>Project Leader</i> <b>Železničná spoločnosť Cargo Slovakia, a.s.</b> Ing. Ján Simčo, Director of bussines department Drieňová 24 SK-82009 Bratislava		<i>Project Partner</i> <b>Sekcia Východoslovenské prekladiská Čierna nad Tisou</b> Ing Szabolcs Nagy, Technology specialist Železničná 1 SK-04179 Košice	
TAGGING	Overall area of BP	Detailed area of BP	Involved transport modes
	X Logistic Service Provider (LSP) and infrastructure	X Only between LSP or initiated by LSP	X Railway X Pipeline
<i>Country</i> <b>Slovakia</b>		<i>Timescale</i> <b>Start: 2007</b> <b>Opening: 23th October 2009</b>	

## THE BEST PRACTICE CASE

The founder and 100% shareholder of Železničná spoločnosť Cargo Slovakia, a.s., (hereinafter referred to as "ZSSK CARGO") is the Slovak Republic. Rights of the Government being its shareholder are executed by the Ministry of Transport, Posts and Telecommunications of the Slovak Republic (MDPT SR). The essential roles of ZSSK CARGO are transport and business activities on railroad, in particular services oriented to transport and carriage of goods in rail freight traffic.

This project dealt with a modernisation of the fluids transshipment facility in *Cierna nad Tisou* at the Ukrainian border. It also concerned the situation of changing the rail tank waggons from broad gauge to standard gauge.

Nowadays this facility represents the most modern fluids transloading facility at Ukrainian border with high handling performance. It fulfils strict environmental and working safety

requirements. Transshipment is managed by modern computerised system with monitoring the whole transloading processes.

## INITIAL SITUATION

The old fluids transshipment facility at the Ukrainian Border did not correspond to the working safety and environmental standards. Hence, it was essential to modernise this facility in order to ensure the continued existence of this important logistic node.

## OBJECTIVES

- Construction of a new and modern fluids transshipment facility for six groups of commodities
- Locating this facility at near the Ukrainian border
- Installation of a transshipment point in order to change broad gauge rail tank waggons to standard gauge ones

## FINANCIAL AND LEGAL FRAMEWORK

Total costs of modernisation amount to 10 m EUR. In connection to the legal framework, legislative requirements for working safety, environmental safety, chemicals legislation, railway legislation are respected.

## RESULTS AND EVALUATION

The new facility doubled the performance of the old one. The transshipments are performed for six positions as follows:

### Position 1: Alcohol derivatives

- methanol
- ethanol
- butanol
- isopropyl alcohol
- other alcohols

### Position 2: Technical oils

- engine oil
- hydraulic oil
- mineral oil
- linen oil
- phenol oil
- other oils

### Position 3

- solvents
- toluene
- acetone
- xylenes
- ethylbenzene
- benzene

### Position 4: Food oils

- sunflower oil
- colza oil
- other food oils

- Stainless steel pumping system

### Position 5: Acetates

- ethylacetate
- butylacetate
- vinylacetate
- etc.

### Position 6: Fuels

- diesel oil
- kerosene
- gas oil
- heat oil
- petrol
- etc.

Furthermore the following results were achieved:

- Environment protection,
- Air protection
- Protection of water sources
- Fire protection
- Work safety

## LESSONS LEARNT

The effort for the project preparation has to be considered within the time scale as this can pose a very time-consuming task. An environmental impact assessment analysis should be part of the project.

## ADDITIONAL INFORMATION

[www.zscargo.sk/sk/pre-verejnost/aktuality/spustenie-zrekonstruovanej-prevadzky-v-precerpavacom-komplexe-v-ciernej-nad-tisou.html](http://www.zscargo.sk/sk/pre-verejnost/aktuality/spustenie-zrekonstruovanej-prevadzky-v-precerpavacom-komplexe-v-ciernej-nad-tisou.html)

[korzar.sme.sk/c/5076279/opravili-precerpavaci-komplex-v-ciernej-nad-tisou.html](http://korzar.sme.sk/c/5076279/opravili-precerpavaci-komplex-v-ciernej-nad-tisou.html)

[www.tasr.sk/31/6160.axd](http://www.tasr.sk/31/6160.axd)

## New Packing and Load Securing Procedure for Palletized Chemicals in Paper Bags transported in Semi-Trailers and Containers by Road, Rail and Sea Transport



### Project Leader

**Duslo, a.s. Šaľa**

Ing. Erik Rakický, Director of SBU - Organic  
DUSLO a.s.  
SK-92703 Šaľa

### Project Partner

**DUSLO a.s. Šaľa**

Ing. Pavol Biro, Production manager  
DUSLO a.s.  
SK-92703 Šaľa

### TAGGING

Overall area of BP

**X Industry Internal**

Detailed area of BP

**X Production/Distribution**

Involved transport modes

**X Road**

**X Intermodal**

Country

**Slovakia**

Timescale

**Start: August 2008**

**End: September 2008**

### THE BEST PRACTICE CASE

Duslo, a.s. Šaľa has developed in the course of its history into the producer of fertilizers of European importance and the global supplier of rubber industry chemicals. In addition to it, the company produces pesticides, industrial explosives, polypropylene fibres and concentrates for fiber and plastics industry applications. The position of reliable business partner is based on use of own technologies using in a large extent tradable commodities as a raw material input.

This Best Practice describes new packing and load securing procedure for palletized chemicals in paper bags transported in semi-trailers and containers by road, rail and sea transport. The aim was to increase the number of bags layers on a pallet to utilize cargo transport unit and simplify load securing.

### INITIAL SITUATION

To solve packing and load securing for palletized bags transported in semi-trailers and containers for road, rail and sea transport was challenging at the beginning. The handled chemicals are categorised as dangerous goods and therefore ADR, RID and IMDG-Codes have to be followed during transport and storage. Initially, the palletised bags were packed on 6-layers-high pallets. Often the load presented a danger for road users especially in curtainsider semi-trailers.

Another aspect was that control authorities considered palletised bags with dangerous goods as not stackable and imposed higher requirements for load securing. The packing machines in chemical company were not able to pack more than 6 layers therefore loading of pallets in CTU in 2 layers was inevitable. There were 46 pallets (14 in upper layer) loaded into standard 13.6 m semi-trailer, 28 pallets in 2 layers into 20' container and 44 pallets (16 in



upper layer) into 40' ISO container. Especially load in semi-trailer and 40' container presented load securing problems and additional pallets, lashings, wooden boards and corner protectors had to be used. The following tests were performed to find out load securing solutions for old and new packages:

- Friction tests to determine friction of bags-pallet and bags-bags
- Inclination tests to measure stability of old and new pallets
- Inclination tests to check load securing of old pallets in two layers and new higher pallets in one layer for road transport
- Driving tests to check the load settling (granulate inside the bags) and inevitable use of long corner protectors (pressure distribution) for pallets in 2 layers in semi-trailer with a tarpaulin.

## OBJECTIVES

- Increase of work , traffic and environment safety
- Reduction of overall logistics costs and loading and unloading time
- Enlargement of CTU's loaded and unloaded per day
- Improvement of the work safety during loading and unloading for staff
- Reduction of the amount of packing and load securing materials used
- Increase in the CTU utilization and amount of goods sold
- Decrease in the amount of waste from packing materials in customer's premises

## FINANCIAL AND LEGAL FRAMEWORK

The initial costs needed to prepare load securing and packing guidelines and modification of packing line are 36,000 EUR.

The following legal framework for packing and transport of dangerous goods has to be

followed: ADR, RID, IMDG Code, national and industrial legislation for chemical goods. Furthermore, the European Best Practice Guidelines on Cargo Securing for Road Transport are now referred in ADR 2009.

## RESULTS AND EVALUATION

- Decrease of loading and unloading time by 15 minutes
- Increase of CTU's loaded and unloaded per day
- Decrease of packing materials used (heat treated pallets, shrink foil, reflex foil, PE bands, cardboards)
- Reduction of amount of load securing materials used (pallets, lashings, corner protectors, wooden mesh)
- Increase of CTU utilization and number of bags sold (new design increased the amount of bags in CTU)
- Diminution of waste from packing materials in customer's premises (pallets, foil, reflex foil, PE bands)
- Decline of logistic costs (more bags carried)
- Total save from 1st January 2009 until 30th September 2009 amounts to 29,980.00 EUR. However, the system is running already from 1st October 2008.
- Raise of work safety for loading and unloading personnel
- Increase of traffic and environment safety for traffic users

## LESSONS LEARNT

Supposed difficulties were that all customers do not accept higher and heavier packages. However, all customer accepted higher and heavier pallets and welcomed decreased amount of packing material (waste disposal).

## ADDITIONAL INFORMATION

Internal company information – documentation not publicly available

### **3.4 Best Practice Cases from Province Novara**

ChemLog Project Partner:

***Province Novara***

## Development of a Transport Concept for Incoming Raw Materials in Novara Production Complex of Radici Group



### Project Leader

#### Radici Group

Moreno Novi, Logistics&Raw Materials  
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IT-24024 Gandino

### Project Partners

#### Radici Chimica S.p.A.

Moreno Novi, Logistics&Raw Materials  
Via Fauser, 50  
IT-28100 Novara

#### Trenitalia State Railways

Riccardo Bottigliero, Head Office Operational Services  
of Trenitalia Cargo/Logistics  
Via Valtellina 5/7  
IT-20159

### TAGGING

Overall area of BP

**X Industry Cooperation**

Detailed area of BP

**X between chemical  
company and LSP**

Involved transport modes

**X Railway**

Country

**Italy**

Timescale

**Start: June 2007**

**End: --**

## THE BEST PRACTICE CASE

The Radici Group is one of the most important Italian chemical companies, with an annual turnover of about 1 bn Euro. The Novara production complex is substantially dedicated to the production of polymer granulate, which is used in external plants for obtaining nylon 66; its quantity is about 100,000 tons per year. The most important raw materials, used in Novara production process are: NH<sub>3</sub>, Cyclohexanol and a Nitrocompound. While the final product is not dangerous, these three raw materials are highly dangerous.

The Best Practice Case describes the planning and implementation of a transportation network for the incoming raw materials.

## INITIAL SITUATION

The production is an around the clock continuous process; initially the flow of incoming raw materials was mainly executed by road. Unfortunately delivery times and delivered quantities were not guaranteed by this transport mode, hence frequent and serious production drawbacks were caused. Therefore a high stock level, both for working and back-up purposes, was build up for each raw material.

After a careful analysis of pros and cons the procurement department found different solutions for the incoming transport and storage of raw materials. About 5 years ago (project start), they decided to construct an internal rail track with a length of one kilometer, connected with the Trenitalia network. This decision was supported by Trenitalia.

**OBJECTIVES**

- Improvement in safety  
Railway is by far the safest transport mode, and therefore huge quantities of highly dangerous goods are pushed significantly in this direction. Furthermore the rail track is quite near to the raw material tanks located. The unloading process from tank waggons to storage tanks is performed via different, dedicated unloading stations. Finally, the feeding of production units is ensured by an internal pipeline network.
- Increase of delivery reliability  
In order to guarantee the requested daily supply of raw materials, which come from different production sites, both from Italy and abroad, it was decided to transport these materials using full trains with appropriate time schedules.
- Fixing the availability of tank waggons  
If some waggons must remain parked (full or empty) inside the plant network, this situation should not cause a shortage of transport units for Trenitalia.
- Promotion of efficient rail transport  
Using only full trains, transportation of such large quantities of goods by rail is becoming highly efficient at Radici premises. In times of normal economic conditions, the costs of rail transport are competitive compared to those from other transport modes.

**FINANCIAL FRAMEWORK**

The investment value for this Best Practice case is approximately 1 m Euro.

**RESULTS AND EVALUATION**

- Reduction of logistic cost
- Improvement of safety for transport of huge quantities of very dangerous goods
- Guarantee of daily supply with raw materials
- Improvement of the weekly distribution of products and goods in process
- Possibility of building an efficient rail track, due to the proximity of the railway network
- Excellent cooperation between Trenitalia and Radici Group

**LESSONS LEARNT**

The only critical point refers to penalty clause, which, during this last semester, proved to be too heavy, in times of reduced product demand by manufacturing companies. This item must be reviewed, in order to keep a win-win cooperation. Discussions between the partners are being held on this subject.

**ADDITIONAL INFORMATION**

[www.radicigroup.com/chemicals](http://www.radicigroup.com/chemicals)

### **3.5 Best Practice Cases from Czech Republic**

ChemLog Project Partner:

*Association of the Chemical Industry Czech Republic*

## The Problems of Transport of Chemicals in the System of Combined (Multimodal) Transport



*Project Leader*

**Association of the Chemical Industry of the Czech Republic**

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*Project Partner*

**VUOS Pardubice**

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TAGGING

*Overall area of BP*

**X Industry Internal**  
**X Industry Cooperation**  
**X Logistic Service Provider (LSP) and infrastructure**

*Detailed area of BP*

**X Distribution between chemical companies**  
**X between chemical companies and LSP**

*Involved transport modes*

**X Road**  
**X Railway**  
**X Waterway**  
**X Intermodal**

*Country*

**Czech Republic**

*Timescale*

**Start: July 2009**  
**End: December 2009**

### THE BEST PRACTICE CASE

The Association of Chemical Industry in Czech Republic represents the interests of the chemical industry. VUOS is one of the largest Czech firms dealing with research and development in the field of organic chemistry and toxicology. As a stock company, the main shareholder is Synthesia keeping 100% of shares. Synthesia is the largest producer of fine chemicals in Czech Republic.

This project is dedicated to define the real needs of chemical industry in terms of transport of chemicals by combined transport (oversea and Europe in short- and long-term horizon). Moreover, the aim is to adapt the system of combined transport and the related intermodal infrastructure to the needs of chemical companies and carriers.

### INITIAL SITUATION

Combined transportation is generally defined as a transport of goods in one transportation unit by at least two kinds of different transport modes. The transport unit could be container, swap body, roll-away container, but also truck, trailer with or without trailer tractor. The pre- and oncarriage are mainly realized by road.

Despite of the fact that the combined transport has long tradition in the Czech Republic, the transported amounts are very small and the share of the combined transport on the overall transport (road, railway, river, air and pipeline transport) remain insignificant. In 2006, the share of the combined transport on the overall transport was only 6%.

Several transportation companies realize only one particular type of transport. The forwarding companies mainly ensure the subsequent (coherent) transport systems (antenna) to shuttles. Operators of the combined transport and terminals play a key role in the development of the combined transport.

Different transportation units are utilized in the Czech Republic for transport of goods. Formerly, whole trucks were transported by the accompanied transport; most recently the unaccompanied kind of combined transport, using containers, swap bodies, roll-away containers etc., is used.

Particularly in the case of dangerous chemical compounds, the safety requirements have to be fulfilled to avoid the health risks and damage of the environment. These requirements for road or railway transport are set in international agreements, which were signed by the Czech Republic (the European Agreement about International Transport of Dangerous Goods (ADR) and European Regulation for International Railway Transport of Dangerous Goods (RID)).

The chemicals in the Czech Republic are mainly transported in the classic containers (ISO, roll-away or inland containers). These containers are often specially modified for transport of chemical compounds (e.g. cooling, isothermic, tank or bulk material containers).

Transport of chemicals, especially dangerous chemicals, requires also other precautions. The providers of the chemical logistic services should be evaluated continuously. The system, used for evaluation of safety, quality and environmental aspects in transportation companies is called SQAS (Safety & Quality Assessment System – see above).

Within the Czech Republic, the continuous service is given in the case of solving extraordinary situations connected with transport and storage of chemicals, with the special view to dangerous chemicals. This service is known under abbreviation TRINS

(Transport Information and Accident System). TRINS is included in the European Transport Information and Accident System Network – ICE network (15 members). TRINS was established in 1996 and is based on the agreement between Association of Chemical Industry of the Czech Republic and Interior Ministry of the Czech Republic.

Integral part of the combined transport is also cleaning of the used transportation containers. The companies focused on cleaning of the transportation units are grouped in the CACS (Czech Association of Cleanig Stations). These companies are certified according to SQAS and allowed to issue the unific European Certificate about Cleaning – ECD.

## OBJECTIVES

- Development of a complex network of shuttles in Central and Eastern Europe – interconnection of these networks for continental and sea transports
- Ensurance of sufficient amount of suitable containers for chemical
- Improvement of the terminal equipment with respect to the transport of chemicals
- Installation of cleaning stations
- Improvement of the monitoring process in terms of chemical transport
- Permanent education of the employees involved in the transportation chain

## FINANCIAL AND LEGAL FRAMEWORK

The financial resources should be obtained from four different authorities: Public EU Funds, State, regional and private institutions.

The legal framework is represented through the following regulations:

Some documents legalized in the Czech Republic and proclaimed in the Collection of laws and Collection of international agreements

Public notice No. 62/1986 Sb., about International Agreement about Safety of Containers (CSC – Convention of Safe Containers)

Announcement No. 35/1995 Sb., European Agreement about Most Important Pathways of International Combined Transport and Connected Objects (AGTC)

Announcement No. 163/1999 Sb., European Agreement about Main Inland Waterways of International Importance (AGN)

Public notice No. 352/2004 Sb., about Operational and Technical Interconnection of European Railway System

European Agreement about International Railway Arterials (Agreement AGC)

Public notice No. 64/1987 Sb., European Agreement about International Transport of Dangerous Goods on the Road (ADR)

European Agreement about Main Roads with International Traffic (Agreement AGR)

Resolution CEMT (European Conference of Transport Ministers):

About the development of combined transport (June 1995, April 1997)

About development of international combined transport (May 1994)

About decreasing of the CO<sub>2</sub> level in the transport (May 1993)

Overall resolution about combined transport (May 2002)

Final documents from pan European conferences

Combined transport in the EU Legislation  
Legislation EU concerned with combined transport is discussed in the charter No. 7 (Transport) and in the subchapter 07.20.50 (Combined transport).

Regulation of European Parliament No.1692/96/ES

Transportation policy of the Czech Republic – Resolution of the Government of the Czech Republic for years 2005 -2013

## RESULTS AND EVALUATION

- Increase of the number of shuttles realized on and over the territory of the Czech Republic
- Increase of transportation of chemical goods
- Enlargement of combined transports and turnover of chemicals on the overall transport
- Increase of competitiveness of the chemical industry
- Decrease of burdens on environment and reduction of risks connected with the transport of chemical raw materials and products

## LESSONS LEARNT

A potential risk represents the high expenses for transportation units and transloading facilities for combined transport. Also the complexity of combined transport from the logistic point of view should be taken into account. Unsystematic, inconsistent politic and legislative supports, lack of cooperations in combined transport across Europe endanger the project. Finally the backwardness in building up the infrastructure of combined transport, slow returnability, missing guarantee from the state and connected unwillingness of the private companies to invest into the development of this segment is an important issue.

## ADDITIONAL INFORMATION

Subjects involved in the combined transport

Operators of the combined transport

- BOHEMIACOMBI, [www.bohemiakombi.cz/](http://www.bohemiakombi.cz/)
- ČSKD INTRANS, [www.intrans.cz/](http://www.intrans.cz/)
- ERS RAILWAYS (MAERSK CZECH REPUBLIC), [www.maerskline.com/](http://www.maerskline.com/)
- METRANS, [www.metrans.cz/](http://www.metrans.cz/)



## Operators of the terminals for combined transport

- ČD-DUSS Terminál, [www.cdd-terminal.cz/](http://www.cdd-terminal.cz/)
- ČESKÉ PŘÍSTAVY a.s., [www.ceskepristavy.cz/](http://www.ceskepristavy.cz/)
- Česko-saské přístavy, [www.csp-labe.cz/](http://www.csp-labe.cz/)
- ČSKD INTRANS, [www.intrans.cz/](http://www.intrans.cz/)
- MAERSK CZECH REPUBLIC, [www.maerskline.com/](http://www.maerskline.com/)
- METRANS, [www.metrans.cz/](http://www.metrans.cz/)
- OKD, Doprava, [www.okd-doprava.cz/](http://www.okd-doprava.cz/)
- TRANS – SPED – CONSULT Lovosice, <http://tsc1.sweb.cz/>

## International organizations

- UIRR (International Union of combined Road-Rail transport companies) – the only member from the Czech Republic is BOHEMIACOMBI, [www.uirr.com/](http://www.uirr.com/)
- UIC (International Union of Railways) – Section of Combined Transport, CD is also a member, <http://uic.asso.fr/>
- EIA (European Intermodal Association) – established 1993, associate railway organizations, ports and some operators, [www.eia-ngo.com/](http://www.eia-ngo.com/)
- BIC (Bureau International des Containers) – International agency for containers, [www.bic-code.org/](http://www.bic-code.org/)
- CESAR – (Cooperative European System for Advanced Information Redistribution) – information about services of different operators, [www.cesar-online.com/](http://www.cesar-online.com/)

- INTERCONTAINER – International Railway Association for Transport of Containers, [www.icfonline.com/](http://www.icfonline.com/)

## Companies in the chemical industry (listed in the SWOT analysis document or at the end of the Best Practice)

### Professional associations

- Association of the Chemical Industry of the Czech Republic [www.schp.cz/html/](http://www.schp.cz/html/)
- Association of Forwarding and Logistics of the Czech Republic
- Group of Combined Transport, [www.sslczech.cz/cs/](http://www.sslczech.cz/cs/)
- Transport Union – Section of Combined Transport (established in 1997), [www.svazdopravy.cz/](http://www.svazdopravy.cz/)
- Czech Intermodal Association (established in 1998)

### Involved public administration

- Ministry of Transport of the Czech Republic, [www.mdcr.cz/](http://www.mdcr.cz/)
- Ministry of Environment of the Czech Republic, [www.mzp.cz/](http://www.mzp.cz/)
- Ministry of Finance of the Czech Republic, [www.mfcr.cz/](http://www.mfcr.cz/)
- Interior Ministry of the Czech Republic, [www.mvcr.cz/](http://www.mvcr.cz/)
- Ministry of Health of the Czech Republic, [www.mzcr.cz/](http://www.mzcr.cz/)

## The Utilization of Elbe Waterway for Transport of Chemicals



### Project Leader

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### Project Partner

#### VUOS Pardubice

Josef Havránek, Projectleader  
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### TAGGING

#### Overall area of BP

**X Industry Internal**  
**X Industry Cooperation**  
**X Logistic Service Provider (LSP) and infrastructure**

#### Detailed area of BP

**X Distribution between chemical companies and LSP**  
**X between LSP or initiated by LSP**  
**X initiated by public Authorities**

#### Involved transport modes

**X Waterway**  
**X Intermodal**

### Country

**Czech Republic**

### Timescale

**Start: July 2009**  
**End: December 2009**

## THE BEST PRACTICE CASE

The Association of Chemical Industry in Czech Republic represents the interests of the chemical industry. VUOS is one of the largest Czech firms dealing with research and development in the field of organic chemistry and toxicology. As a stock company, the main shareholder is Synthesia keeping 100% of shares. Synthesia is the largest producer of fine chemicals in Czech Republic.

The Best Practice deals with the improvement of the nautical and technical possibilities of Elbe waterway and the definition of the capacity or export – import – transit of chemicals. Furthermore the project partners aim to plan transportation chains including technical

equipment and to define the involved subjects with their contractual and associative relations. Support from regions and other state administrative bodies and EU is essential for the success of the project as well as the delimitation of factual spheres of ecologic problems (pass over the politics, interest and lobbyistic pressures) and basic steps for their solution

## INITIAL SITUATION

The Elbe is one of the biggest rivers in Europe. The Elbe springs in Krkonose in the Czech Republic and flows through Germany to the Northern Sea. Several industrial centres are located along the river. These centres use Elbe, or could use Elbe, as a natural transport corridor. Back to 1996 the Czech Republic ratified AGN

Agreement, which define parameters of the waterway according to the international classification. Neither the parameters nor the commitment has been fulfilled yet. In 2006, the Czech – German memorandum was signed. This memorandum takes into account that the whole Elbe waterway will be made navigable to defined parameters. On the German side, the memorandum is realized with the aim to finish the required activities in 2010. However, on the Czech side the project has not been started up to now.

In the Elbe basin several important chemical plants are situated (e.g. Pardubice, Kolin, Neratovice, Lovosice, Usti nad Labem, ale i Kralupy nad Vltavou a Litvinov, etc). In terms of transport, the Elbe river has a great potential, especially for:

- Heavy general cargo (turbines, engines, convertors, silos, tanks for power station)
- Dry or powdery materials especially basic chemicals, fertilizers, broken stone, sand, stone, ore and coal.
- Liquid cargo (e.g. mineral oils, lubricants, liquid chemicals or vegetable oils, ect.)
- Container transport

In the recent years the container transport has developed rapidly. However, in the Czech Republic, the integration of the river transport to the system of combined transport is minimal.

Transport of dangerous chemicals on the waterways is treated by the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterway from year 2000. This agreement is known as ADN and was ratified by eight countries: Russia, Hungary, Netherlands, Austria, Bulgaria, Luxemburg, Moldavia and France. The Czech Republic has incorporated this agreement by the Czech Government Resolution from 14th April 2003.

## OBJECTIVES

- Ensurance that the Elbe navigability according to the Czech-German memorandum, i.e. improving of the nautic and technical possibilities of the Elbe waterway by realization of the project of water work Male Brezno and Prostredni Zlab or at least by realization of the compromise water work Decin.
- Systematic maintaining of the river shed - mud removal
- Systematic education of the responsible persons and clear defining of the requirements for the companies involved in the river transport
- Improvement of the services in the river transport and targeted cooperation with other kinds of transport (creating of the multimodal nodes offering high quality services)
- Interconnection of involved subjects – transporters with the potential subjects responsible for realization of transport; determination of subsequent steps including long-term investment goals in the field of chemical industry

## FINANCIAL AND LEGAL FRAMEWORK

Again, the financial resources should be obtained from four different authorities: Public EU Funds, State, regional and private institutions.

The connected legal documents are:

European Agreement concerning the Main Inland Waterways with the International Importance (AGN)

European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterway (ADN)

Law No. 114/1995 Sb. About the Inland River Navigation

Public notice of the Ministry of Transport No. 222/1995 Sb., about waterways, navigation traffic in the ports, transport of dangerous goods

Transport Union – Section of River Transport (established in 1997), <http://www.svazdopravy.cz/>, summaries from the general meetings, press release

General Agreement of the LABE/ELBE Euro Region from 24th July 1992

Territorial plan of Decin

Improving of the navigability of Elbe, water work Decin – General management of waterways of the Czech Republic

Programs for support of the inland river transport:

Program NAIADES (Navigation And Inland Waterway Action and Development in Europe). The European Commition has ratified this integrated European action program for inland river transport in 2006.

Program MARCO POLO II, EU Program, which focuses on the modernization of the vessels for inland river transport and transferring of the part of the loads from highways to alternative kinds of transport.

## RESULTS AND EVALUATION

- Increase of navigable days during the year
- Realization of deadlines to build up the two above mentioned water works (Prostřední Zláb and Male Brezno)
- Increase in volume of chemicals transported
- Higher share of inland navigation on the overall transports
- Better conditions for utilization of 300 km waterways on the Czech territory
- Increase of competitiveness of the chemical industry
- Decrease of the burden on the environment and reduction of the risks

connected with the transport of chemical raw materials and products by transferring traffic from roads and railways

## LESSONS LEARNT

The water works project yet has not been realized due to the facts that the waterway still remains unreliable in terms of significant fluctuation of the flow in the Elbe, connected with climate conditions. Furthermore less rentability of transportation by inland waterway leads to a lack of maintenance and a suboptimal technical state of the vessels. Liberalization of the employment market without any restrictions results in a lack of qualified crews.

## ADDITIONAL INFORMATION

Ship owners and operators of the ports

Companies involved – chemical, agriculture and construction companies

(listed in the SWOT analysis document or at the end of the Best Practice)

Professional Associations

- Association of the Chemical Industry of the Czech Republic
- [www.schp.cz/html/](http://www.schp.cz/html/)
- Transport Union – Section of River Transport, [www.svazdopravy.cz/](http://www.svazdopravy.cz/)
- Czech Intermodal Association (established in 1998)
- European Association of Ship Owners (EBU), [www.avpcz.cz/](http://www.avpcz.cz/)

Involved public administration and connected subjects within the Czech Republic

## Involved public administration

- Ministry of Transport of the Czech Republic, [www.mdcz.cz/](http://www.mdcz.cz/)
- Ministry of Environment of the Czech Republic, [www.mzp.cz/](http://www.mzp.cz/)
- Ministry of Finance of the Czech Republic, [www.mfcr.cz/](http://www.mfcr.cz/)
- Interior Ministry of the Czech Republic, [www.mvcr.cz/](http://www.mvcr.cz/)
- Ministry of Health of the Czech Republic, [www.mzcr.cz/](http://www.mzcr.cz/)

## Connected subjects

- State Shipping Administration, [www.spspraha.cz/](http://www.spspraha.cz/)
- General Management of Waterways of the Czech Republic, [www.rvccr.cz/](http://www.rvccr.cz/)
- Elbe Basin, [www.pla.cz/](http://www.pla.cz/)

ChemLog Project Partner: Association of the Chemical Industry of the Czech Republic

Other involved partners: The list of other involved partners of the Association of the Chemical Industry of the Czech Republic is enclosed in separate file.

## Railway and Road Corridors, their Building up with respect to the Transports of Chemicals



### Project Leader

#### Association of the Chemical Industry of the Czech Republic

Ing. Ladislav Špaček CSc., Health, Safety and Environment  
Dělnická 12  
CZ-170 00 Prague

### Project Partner

#### VUOS Pardubice

Josef Havránek, Projectleader  
Rybitví 296  
CZ-533 54 Pardubice

### TAGGING

#### Overall area of BP

**X Industry Internal**  
**X Industry Cooperation**  
**X Logistic Service Provider (LSP) and infrastructure**

#### Detailed area of BP

**X Distribution between chemical companies and LSP**  
**X between LSP or initiated by LSP**  
**X initiated by public Authorities**

#### Involved transport modes

**X Road**  
**X Railway**  
**X Intermodal**

### Country

**Czech Republic**

### Timescale

**Start: July 2009**  
**End: December 2009**

## THE BEST PRACTICE CASE

The Association of Chemical Industry in Czech Republic represents the interests of the chemical industry. VUOS is one of the largest Czech firms dealing with research and development in the field of organic chemistry and toxicology. As a stock company, the main shareholder is Synthesia keeping 100% of shares. Synthesia is the largest producer of fine chemicals in Czech Republic.

This Best Practice is concerned with the maximisation of utilization in current and planned railway and road corridors for chemical transportation.

## INITIAL SITUATION

Trans-European transportation network includes all main pathways in the EU, i.e. 75,200 km of roads, 78,000 km of railways, 330 airports, 270 sea ports and 210 inland river ports. Moreover, from 1994 ten Paneuropean corridors - nine road and railway corridors and one inland waterway (Danube) - are classified as the main pathways in Central and Eastern Europe. The most important corridors for the Czech Republic are:

- Corridor IV: Dresden – Prague – Bratislava/Wien – Budapest – Arad (4 340 km of railways, 3 640 km of roads); branch Norimberk - Praha

- Corridor VI: Gdansk – Warsaw – Katowice – Zilina (1 800 km of railways, 1 880 km of roads); branch Katowice – Ostrava – Brno (Breclav)

The development of the transport infrastructure in the Czech Republic is covered by the Operational Program Transport (OPD), which has been funded by the EU. The Operational Program Transport is the biggest program for the period 2007–2013 in the whole Czech Republic with a financial budget of 5,774 bn EUR. The program is mainly focused on the fulfilling of the European transportation priorities and on the realization of priorities and goals described by the Transportation Policy of the Czech Republic for 2005-2013. The particular objectives are to support the building up and modernization of the transportation infrastructure of the Czech Republic. The OPD program also includes the support of infrastructure in the networks beside TEN-T, multimodal transport, infrastructure for inland navigation, and modernization of barges and development of the intelligent transportation systems.

## OBJECTIVES

- Overall interconnection of corridors in the modern logistic centres (interconnection of the railway network in the Czech Republic with the main Europeans corridors)
- Improvement of technical equipment (background) within the corridors and logistics centres with respect to the transports of chemicals
- Simplification and speeding up of the check-in during the East/West transit in both directions
- Monitoring of the transport of dangerous goods, especially of goods which are transported repeatedly
- Increase in speed and safety of transport
- Improvement of the reliability and regularity in terms of the freight transport

## FINANCIAL AND LEGAL FRAMEWORK

The financial resources should be obtained from four different authorities: Public EU Funds, State, regional and private institutions.

The legal framework is reasoned due to the following items:

Direction of European Parliament and Council 2008/68/ES about overland transport of dangerous goods. The direction became valid on 30th September 2008.

Collective stance (ES) No. 10/2008 accepted by European Council (7th April) to the acceptance of Direction of European Parliament and Council 2008/.../ES about overland transport of dangerous goods

Operational program TRANSPORT (OPD)

## RESULTS AND EVALUATION

- Increase of chemical goods transported on railway and road corridors
- Increase of overall turnover of transports by railway and road on the west/east axis
- Building up of corridors (both railways and road) measured by number of realized kilometres
- Improvement of background facilities (e.g. certified cleaning stations, lay-by-places, warehouses, etc.)
- Quality improvement of services offered on the railway and road corridors
- Raise of competitiveness of the chemical industry
- Suppresion of risks connected with the transport of chemical raw materials and products

## LESSONS LEARNT

The capacity and the quality of both railway and road infrastructure pose the main problems of the corridors. The capacity of nodal points is considered to be sufficient, although regarding the future development of the integrated system modernization is necessary.



## ADDITIONAL INFORMATION

Railway and road transporters

Operators of the combined transport

- BOHEMIACOMBI,  
[www.bohemiakombi.cz/](http://www.bohemiakombi.cz/)
- ČSKD INTRANS, [www.intrans.cz/](http://www.intrans.cz/)
- ERS RAILWAYS (MAERSK CZECH REPUBLIC), [www.maerskline.com/](http://www.maerskline.com/)
- METRANS, [www.metrans.cz/](http://www.metrans.cz/)

Operators of the terminals of the combined transport

- ČSKD INTRANS, [www.intrans.cz/](http://www.intrans.cz/)
- MAERSK CZECH REPUBLIC,  
[www.maerskline.com/](http://www.maerskline.com/)
- METRANS, [www.metrans.cz/](http://www.metrans.cz/)
- ČESKÉ PŘÍSTAVY a.s.,  
[www.ceskepristavy.cz/](http://www.ceskepristavy.cz/)
- Česko-saské přístavy, [www.csp-labe.cz/](http://www.csp-labe.cz/)
- OKD, Doprava, [www.okd-doprava.cz/](http://www.okd-doprava.cz/)
- ČD-DUSS Terminál, [www.cdd-terminal.cz/](http://www.cdd-terminal.cz/)
- TRANS – SPED – CONCLT,  
<http://tsc1.sweb.cz/>

Professional associations

- Association of the Chemical Industry of the Czech Republic  
[www.schp.cz/html/](http://www.schp.cz/html/)
- Association of Forwarding and Logistics of the Czech Republic
- Group of Combined Transport,  
[www.sslczech.cz/cs/](http://www.sslczech.cz/cs/)
- Transport Union – Section of Combined Transport (established in 1997),  
[www.svazdopravy.cz/](http://www.svazdopravy.cz/)
- Czech intermodal association (established in 1998)

Involved public administration

- Ministry of Transport of the Czech Republic, [www.mdcr.cz/](http://www.mdcr.cz/)
- Ministry of Environment of the Czech Republic, [www.mzp.cz/](http://www.mzp.cz/)
- Ministry of Finance of the Czech Republic, [www.mfcr.cz/](http://www.mfcr.cz/)
- Interior Ministry of the Czech Republic,  
[www.mvcr.cz/](http://www.mvcr.cz/)
- Ministry of Health of the Czech Republic,  
[www.mzcr.cz/](http://www.mzcr.cz/)



### **3.6 Best Practice Cases from Germany**

ChemLog Project Partner:

*isw Institute for Structural Policy and Economic Development*

## Centralized Logistics for Plastics Granulates at the Dow Site in Schkopau



*Project Leader*

**Dow Olefineverbund GmbH**

Wolfgang Schnabel, Supply Chain Manager  
DE-06258 Schkopau

*Project Partner*

**Industry Internal – no Project Partner**

**TAGGING**

*Overall area of BP*

**X Industry Internal**

*Detailed area of BP*

**X Planning**

**X Sourcing**

**X Production**

**X Distribution**

*Involved transport modes*

**X Road**

**X Railway**

**X Intermodal**

*Country*

**Germany**

*Timescale*

**Start: 1996**

**End: 1998**

### THE BEST PRACTICE CASE

Dow Olefineverbund GmbH has developed a centralized logistics for granules on the site in Schkopau to increase productivity and to lower supply chain costs. A central logistic facility has been developed in close proximity to the production facilities in order to ensure short transportation ways and to allow higher transport volumes.

The Logistic facility includes a silo installation, bagging unit and a block storage warehouse. 800,000 tons of granulates from four different production facilities are handled in this logistic complex.

### INITIAL SITUATION

The initial situation was characterised by low productivity of isolated and uncoordinated logistics solutions for different production entities at the chemical site in Schkopau, which have caused high costs, higher manpower

requirements and inflexibility. The transported volumes per employee were far below the average industry standards. The development of the centralised logistics complex was connected to the restructuring of the chemical site and modernisation of production facilities.

### OBJECTIVES

Centralization of logistic activities for different plastic production facilities; the industrial benchmark for this activity in 1997 was 14,500 tons per employee and year. The planning of the logistic complex was based on 20,000 tons per employee and year.

- Increase of productivity of Supply Chain Management
- Decrease of costs
- Reduce time in terms of the loading process

- Logistics should be more reliable and flexible

## FINANCIAL FRAMEWORK

Due to fact that this is a company internal project, the financial and legal framework is unessential.

## RESULTS AND EVALUATION

- 800,000 tons per year turnover
- Productivity has increased from 16,000 tons to 25,000 tons per employee (from 1998 to 2008) due to constant optimization and automation of the logistic processes
- Proximity of production and logistic facilities
- Availability of critical mass
- Integration of production and supply chain management processes
- Flexible use of logistic facility according to changing production outputs
- High degree of automation

## LESSONS LEARNT

It was difficult to integrate different informational systems in the automation process of the supply chain (SAP, storage system, site access system, bar code system)

## ADDITIONAL INFORMATION

[www.dow.com/valuepark](http://www.dow.com/valuepark)

## The Dow ValuePark Concept for Integration of Logistic Service Providers in Chemical Sites



*Project Leader*

**Dow Olefineverbund GmbH**

Wolfgang Schnabel, Supply Chain Manager  
DE-06258 Schkopau

*Project Partner*

**Industry Internal – no Project Partner**

**TAGGING**

*Overall area of BP*

**X Industry cooperative**

*Detailed area of BP*

**X between chemical  
Company and LSP**

*Involved transport modes*

**X Road  
X Railway  
X Intermodal**

*Country*

**Germany**

*Timescale*

**Start: 1995  
End: 2005**

### THE BEST PRACTICE CASE

The Dow ValuePark® Concept contains the settlement of chemical companies and Logistic Service Providers alongside the value adding chain on the chemical park in Schkopau (110 ha). This integrative concept for site development creates synergy effects between the companies and allows the concentration on the core business supported by the provision of chemical related industrial services.

Logistic Service Providers settled on the site to provide specialized services for the chemical companies but also in the region. The ValuePark® Concept allows a new quality of cooperation between clients and supplier and leads to higher productivity and competitiveness of the involved partners.

Three major best-practices for chemical logistics are located in Schkopau:

1. The bimodal container terminal and the in-plant transport service from HOYER, operated by the KTSK-enterprise
2. Mitteldeutsche Kunststoff Logistik (MKL) – Central German Plastic Logistic – Joint Venture of Finsterwalder and Schmidt
3. Mitteldeutsche Eisenbahngesellschaft (MEG) Central German Rail Company.

### INITIAL SITUATION

The starting situation was characterized by the enormous efforts of transformation and complete restructuring of the chemical site in Schkopau, which was in extremely bad economic and environmental condition after 40 years of GDR industrial history.

Unproductive chemical facilities had to be modernized and the whole supply chain had to be developed according to the new production.

Chemical Logistics was characterised by little productivity, high costs, long distances, inflexibility and insufficient capacities.

## OBJECTIVES

- Increase of productivity of chemical companies by decreasing Supply Chain costs
- Creation of synergy effects and increasing flexibility by centralized logistics and integration of LSP
- Better location development and positive economic development for the region
- Provide sustainable and competitive employment for the chemical industry location

## FINANCIAL FRAMEWORK

Due to fact that this is a company internal project, the financial and legal framework is unessential.

## RESULTS AND EVALUATION

- ValuePark®: 16 Companies 475 m Euro Investments; 850 new work places, 1000 indirect work places created or secured
- HOYER Terminal, operated by KTSK: TEUs: 2006: 40,000; 2007: 41,000; 2008: 43,000; expected for 2009: 50,000
- MKL 300,000 tons of granulate turnover, variable costs instead of fix costs
- MEG: transport volumes 2000: 6,732,000 Mt, 2005: 17,493,000 Mt, 2006: 19,302,000 Mt, 2007: 17,668,000 Mt, 2008: 19,234,000 Mt.
- ValuePark®: targeted selection of enterprises for settlement and integration on the chemical site,

synergies alongside the value adding chain and according to complexity of production, long-term commitment and expert knowledge of Logistic Service Providers to invest, reliable and long-term business relations to jointly develop partnership concepts for logistics

- HOYER Terminal: Expert knowledge of HOYER in container logistics, reliable long-term cooperation between HOYER and Dow, long-term commitment to invest in the location Schkopau, opportunities to offer logistics services for the chemical location but also for the surrounding region
- MKL: Proximity of production and logistic facilities, no winstead investments from Dow, contract with MKL to provide services. long term contract for 10 years to buy logistics services without minimum sales volume to achieve maximum flexibility and transformation of fix costs into variable costs
- MEG: Privatization process of rail section from Buna to MEG, sustainable growth with transport services for Dow and chemical companies on the site and other regional companies, Higher flexibility for Dow

## LESSONS LEARNT

The settlement of logistic service providers was a clear added value for the location Schkopau.

## ADDITIONAL INFORMATION

There is no additional information about this Best Practice Case available.

### **3.7 Best Practice Cases from Poland**

ChemLog Project Partner:

*Polish Chamber of Chemical Industry*

## Systems Supporting Selling and Transport Management in Chemical Distribution



### *Project Leader*

**Brenntag Polska Sp. z o.o.**

Magdalena Adamow, Transport Managing Director  
21, Bema Str.  
PL-47-224 Kedzierzyn – Kozle

### *Project Partner*

**Co-operating Logistic Transport Providers  
(rail, road)**

### TAGGING

#### *Overall area of BP*

- X Industry internal
- X Industry cooperative
- X Logistic Service Provider (LSP) and infrastructure

#### *Detailed area of BP*

- X Planning
- X Sourcing
- X Distribution
- X Between chemical companies
- X between chemical Company and LSP
- X Only between LSP or initiated by LSP

#### *Involved transport modes*

- X Road
- X Railway

### *Country*

**Poland**

### *Timescale*

**Start: 2005**  
**End: not finished yet**

## THE BEST PRACTICE CASE

Brenntag Polska Sp. z o.o. represents one of the biggest chemical companies in Poland. Since 2005, some modern solutions have been introduced, like the implementation of bar codes within the whole warehouse system which allows to trace precisely the location of each product, or the designing of a software supporting the transport routes planning process. Furthermore ERP system elements have been set up in order to simplify the process of shipping orders in domestic and international transports. Finally freight costs accounting software has also been established in the course of this project.

## INITIAL SITUATION

The initial situation at Brenntag Polska was characterised by out-of-date warehouse management which used paper documents, manually planned transport routes and inefficient handling of shipping orders, which were generated in the own system and could not be connected to other supply chain partners. Also the cost issue was characterised by inefficiency. All processes within the company were time-consuming and extremely depended on know-how and skills of the persons employed. This overall situation caused considerable problems in terms of performance and efficiency.

## OBJECTIVES

- Implementation of clear rules of costs accounting
- Elimination of warehouse operators' mistakes
- Simplification of operating and documentary work
- Reduction in costs

## FINANCIAL AND LEGAL FRAMEWORK

The project costs amount to EUR 450,000. Furthermore this project is paid by own financial sources of Brenntag Polska Sp. z o.o.

## RESULTS AND EVALUATION

- Increase of turnover
- Costs reduction
- Higher customer satisfaction and a significant decrease of claims
- Improvement of the company's image

## LESSONS LEARNT

The company had to face some difficulties during the project implementation due to internal reluctance to changes by the employees. The co-operation with the software provider posed challenges too.

## ADDITIONAL INFORMATION

[www.brenntag.pl](http://www.brenntag.pl)



Safety & Quality Assessment System (SQAS)			
<i>Project Leaders</i> <b>European Chemical Industry Concil (CEFIC)</b> Marc Twisk, SQAS Manager Av. E. van Nieuvenhuyse 4 B-1160 Brussels  <b>Polish Chamber of Chemical Industry</b> Hanna Kilen, Co-ordinator Pawel Mularz, SQAS Accredited Assessor 17, Sniadeckich str., PL-00-654 Warsaw		<i>Project Partners</i> <b>Road Transport /Transport Service companies, LSP</b> <b>Rail Transport Carriers</b> <b>Chemical Distributors</b> <b>Chemical Warehouses</b> <b>Tank Cleaning Station</b> <b>Rail Tank Cars Workshops</b>	
TAGGING	<i>Overall area of BP</i> <b>X Industry internal</b> <b>X Industry cooperative</b> <b>X Logistic Service Provider (LSP) and infrastructure</b>	<i>Detailed area of BP</i> <b>X Planning</b> <b>X Sourcing</b> <b>X Distribution</b> <b>X Other: Subcontractors evaluation</b> <b>X between chemical Company and LSP</b> <b>X Only between LSP or initiated by LSP</b>	<i>Involved transport modes</i> <b>X Road</b> <b>X Railway</b> <b>X Intermodal</b>
	<i>Country</i> <b>Poland</b>	<i>Timescale</i> <b>Start: --</b> <b>End: --</b>	

## THE BEST PRACTICE CASE

As already mentioned before, SQAS is a system of evaluating the quality, safety, security and the environmental performance of Logistic Service Providers and chemical distributors in a uniform manner by single standardized assessments carried out by independent assessors. The Safety & Quality Assessment System idea is to assess all co-operated partners with the same requirements based on similar questionnaires, by third party assessor verified and accredited by CEFIC. SQAS assessors generate comparable reports in terms of safety

and quality. The involved parties alongside the logistic chain are transport service providers (previously road and freight integrator), tank cleaning stations, warehousing partner, rail carrier, RTC (rail tank car) maintenance Workshop and chemical distributors (ESAD).

## INITIAL SITUATION

Before SQAS has been developed by CEFIC, two absolutely different instruments have been used in practice. Chemical companies and LSP co-operated with not controlled partners. The

result were problems with orders given to not assessed LSP, which caused non-conformances, bad quality of service, accidents, etc. Before SQAS was implemented, chemical companies had made audits with each LSP according to their own defined requirements. Hence, the auditing process was time-consuming and expensive.

The current European Transport Industry reality does not longer require the distinction between those separate modules. Most transport companies use a mixture of own and subcontracted drivers and equipment, and offer a complexity of intermodal and logistic services.

The "SQAS Transport Service" module is intended for asset based transport companies, operating predominantly with their own fleet as well as for Logistic Service Providers that are direct partners of the chemical companies, but outsource their logistic services to other companies. The "SQAS Transport Service" module can also be used to assess inland Transfer Terminals.

The most crucial areas assessed in SQAS are:

- Behavior Based Safety (BBS) (Road and Rail Transport and other modules)
- Sub-contractors' evaluation process (whole supply chain)
- "Man in tank" procedure (Tank Cleaning Stations, RTC's Workshops)

The following is an overview about SQAS in Poland by module since 2003, till Oct.2009:

- 61 assessments – Transport Service / Road
- 28 assessments – Tank Cleaning Station
- 5 assessments – Rail Carrier
- 2 assessments – RTC's Workshop
- 9 assessments – Distributor ESAD II
- 1 assessment – Packaged Goods Warehouse

## OBJECTIVE

- Improvement of service quality, safety manner, responsibility for employees and environment within the logistic chain

## FINANCIAL FRAMEWORK

Companies pay for one assessment less than for ISO 9000 certification. The assessment report is valid for 3 years. Afterwards a re-assessment is necessary.

## RESULTS AND EVALUATION

- Increase of competitiveness on the market
- Augment of number of customers
- Increase of turnover
- Higher customer satisfaction
- Higher quality and safety of managed activity
- Raise of responsibility level for employees, environment and neighborhoods

## LESSONS LEARNT

The Safety & Quality Assessment System does not represent a common norm, as for instance ISO certificates.

## ADDITIONAL INFORMATION

[www.cefic.be/sqas](http://www.cefic.be/sqas)

[www.sqas.org](http://www.sqas.org)

[www.pipc.org.pl](http://www.pipc.org.pl)

Articles in Chemical Review, professional magazine for chemical producers and distributors written by Pawel Mularz, Nos. 6/2006, 6/2007, 6/2008, 5/2009.

Articles in Gazeta Transportowa, (Polish Transport Gazette) written by Pawel Mularz and Marek Adamski, 2006, 2009.

River Information Service (RIS) for Inland Waterway			
<i>Project Leader</i> <b>Polish Ministry of Infrastructure</b> <i>Contact Person, Function</i> 4/6, Chalubinskiego str. PL-00-928 Warsaw		<i>Project Partners</i> <b>Inland Waterway Office</b> Dr. Krzysztof WOŚ, Director, Head of Inland Waterways Szczecin 4, Stefan Batory Square PL-70-207 Szczecin <b>ODRATRANS Group</b> <i>Contact Person, Function</i> ODRATRANS S.A., 50, Kleczkowska str. PL-50-277 Wrocław	
TAGGING	<i>Overall area of BP</i> <b>X Industry internal</b> <b>X Industry cooperative</b> <b>X Logistic Service Provider (LSP) and infrastructure</b>	<i>Detailed area of BP</i> <b>X Planning</b> <b>X Sourcing</b> <b>X Distribution</b> <b>X Between chemical companies</b> <b>X Both</b>	<i>Involved transport modes</i> <b>X Waterway</b>
	<i>Country</i> <b>Poland</b>	<i>Timescale</i> <b>Start: --</b> <b>End: --</b>	

## THE BEST PRACTICE CASE

Due to the specific characteristics of inland waterway such as safety, low energy-consuming, low work-consuming and high load carrying ability and capacity, the European Commission strives to increase the utilization of inland waterway transports as an alternative transport mode. Moreover, the inland waterway should play a key role within the European intermodal transport system. This mode together with rail and short-sea transport should contribute to the sustainability of transport system according to the White Book: "European Transport Policy in Horizon to 2010 – Time for Decisions." NAIADES concentrates on five strategic zones. One of these zones is the River Information Service (RIS)

development in Europe as a part of suitable inland waterway infrastructure. RIS includes the following tasks: gathering, processing and giving information about navigational conditions such as weather reports, hydrologic and geographic information. Also the interoperability which guarantees the access to the same database for all users belongs to the tasks of RIS.

## INITIAL SITUATION

New technologies implementation in inland waterway started in last decades as a common advanced IT development.

PCS EQUIPPED WITH WIRELESS INTERNET, GPS, DIGITAL NAVIGATIONAL MAPS AND TRANSPONDERS WERE

INSTALLED ON THE VESSELS BOARDS. QUAYSIDE stations were equipped with vessels radiolocation and reporting systems connected to the own database.

The challenge which had appeared by inland waterway transport sector was the integration of different, new developed local, regional and national IT-Systems in one common European operation concept.

The system's tasks are connected to RIS targets, cooperations within Supply Chain Management and inland waterway riverside infrastructure. Those tasks are realized on 3 different areas:

- logistics cooperation
- transport
- movement co-ordination and registration

The harmonized information system will allow users to achieve of appointed targets based on the gathered and transferred information regarding each service.

## OBJECTIVES

- Creation of following tasks: gathering, processing and giving information to the users in terms of navigational conditions
- Obtainment of interoperability which guarantees the access to the same database for all users belongs to the tasks of RIS
- Improvement of efficiency in terms of increasing waterway capacity, reducing time and costs of transportation, ensuring efficient and economic connections between different transport modes

## FINANCIAL AND LEGAL FRAMEWORK

The costs for implementing RIS in Poland are approximately PLN 80 m (about EUR 20 m) which are financed by European funds and the Polish budget.

In order create a common European framework of a RIS concept, the European Parliament and the Council of Europe decided the directive 2005/44/EU. Legislative work concerning the construction of a RIS system in Poland was completed in 2008. Moreover, Poland implemented the RIS directive by Polish Parliament Act on 4th September 2008 (Dz.U. 2008, poz.1057).

## RESULTS AND EVALUATION

Implementing a RIS system leads to:

- Higher share of inland waterway transport competing by better fleet management and integrating that branch with intermodal delivery chains
- Optimal using of infrastructure due to more efficient terminals, drawbridges and flood-gates using
- Improvement of transport safety by transferring information influencing on tactic and strategic navigational decisions
- Improvement of protection of natural environment by the possibility of monitoring dangerous products transport and increasing inland waterway transport instead of road transport
- Better position of inland waterway in the share of different transport modes including intermodal transport

## LESSONS LEARNT

The necessity of creating new administrative structures for building and implementation a RIS system in Poland.

## ADDITIONAL INFORMATION

- K.Woś: Harmonising River Information Service on Inland Waterways,
- Polish Journal of Environmental Studies, Vol.16, No.6B, 2007
- Business Magazine : K. Woś ; River Information in Poland, September 2009
- Stateczny A. Maritime University, Szczecin: River Information Services in Poland, smart rivers'21, 2009.08.11
- Stateczny A., Interoperativeness of the River Information System of the Lower Odra in the aspect of the Electronic

Navigational Charts ; Polish Journal of Environmental Studies, Vol. 17, No. 3C, 2008

- Stateczny, J.Łubczonek, M. Sobczak : Cell Production of Electronic Charts of the Lower Odra. Inland Shipping 2009, Szczecin, 2009.
- A.Stateczny: Development Research Project Technology of Building of River Information System against the Background of European Research Projects. Polish Journal of Environmental Studies, Vol.16, No.6B, 2007
- Gazeta Prawna (Polish Legal Gazette), Change of Law of Inland Shipping, September 2008

The Change of the Company's Work Organization (Rail Tank Cars Delivery)			
<i>Project Leader</i> <b>PCC SPEDKOL Sp. z. o.o.</b> Krzysztof Chmielewski, Commercial Director ul. Szkolna 15, PL-47-225 Kedzierzyn - Kozle		<i>Project Partners</i> <b>Chemical Producers</b>	
TAGGING	<i>Overall area of BP</i> <b>X Industry cooperative</b> <b>X Logistic Service Provider (LSP) and infrastructure</b>	<i>Detailed area of BP</i> <b>X between chemical Company and LSP</b> <b>X Only between LSP or initiated by LSP</b>	<i>Involved transport modes</i> <b>X Railway</b>
	<i>Country</i> <b>Poland</b>	<i>Timescale</i> <b>Start: --</b> <b>End: --</b>	

## THE BEST PRACTICE CASE

This project deals with the change of cross-border transport organisation in order to diminish transport time, increase punctuality and reduce costs. All of these changes within the transport organisation should be put into action without any additional financing but with modifications of the company's work organisation and the relationship to its clients.

### INITIAL SITUATION

At the beginning client was served by PCC SPEDKOL forwarder, cooperating with PKP Cargo transport agent. The price of the service was fully accepted by the customer, but there was a quality problem especially with these two factors:

- Unpunctuality of deliveries,
- Additional cost caused by shunting operations.

Unpunctuality of deliveries caused a serious problem in production plans preparation, because of really small warehouse (5 days of production).

Additional shunting costs for receiver has been generated by specific side track limitation: impossibility of train turn reverse effected by train drive out and shunting operations at the (distanced) third party area, being a time consuming and additional costs generating process.

## OBJECTIVES

- Diminishing delivery time
- Reduction of transport cost by better rotation of rail tank cars (RTC's),
- Avoidance of additional cost
- Usage of project experiences in order to provide individual solutions to next customers.

## FINANCIAL AND LEGAL FRAMEWORK

The project did not require additional finance either in preparation stage or in service realization. The project implementation was not forced by any legal acts.

## RESULTS AND EVALUATION

- Decrease of service lead time from 3-4 days to 8-10 hours
- Easier planning of production and sale
- Better trade relations with product's receiver
- Reduction of RTC's leasing cost
- Increase of customer satisfaction
- Gain of new experiences needed for offering similar services to other customers
- Increase of brand identity
- Better market position by offering individual logistic solutions adapted to the needs of different customers

## LESSONS LEARNT

At the beginning of the project implementation there problems concerning the coordination of information transfer between trade and logistics customer structures, procurement and logistics receiver structures and the person responsible for the project implementation in the company occurred. The better way is to define the fields of competences in advance to guarantee a high level of acceptance.

## ADDITIONAL INFORMATION

There were not prepared special information concerning implemented solutions, because at that moment the company does not have standarts products to customers. Each solution is treated individually so far.

Company homepage : [www.pccrail.pl](http://www.pccrail.pl) /pccspedkol

## The Best Practices within the Development Scope of Transmission Infrastructure (Pipelines) for Raw Materials and Chemical Products

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TAGGING

*Overall area of BP*

**X Industry internal**

**X Industry cooperative**

*Detailed area of BP*

**X Tariffs**

**X Unbundling**

**X Distribution**

**X TPA, Regulator**

**X Between chemical  
companies**

**X Between chemical  
Company and LSP**

*Involved transport modes*

**X Pipeline**

*Country*

**Poland**

*Timescale*

**Start: --**

**End: --**

### THE BEST PRACTICE CASE

The following case represents a list of Best Practices in respect to pipelines as a transport mode for raw materials and chemical products. These BPs are divided into two layers: on the one hand the business level (including a security of supply and rules for a competitive gas market) and on the other hand the technical level.

At the business level, there are the following issues mentioned:

- Third Parties Access (TPA) regulations  
Effective TPA stimulates trade, competitiveness and fluency on the gas market and does not stop or delay

- Potential investments in infrastructure. Furthermore TPA requires activities from the regulators. These activities include the control of services regarding each transfer or storage demand, monitoring the transmission or storage services and a full knowledge of the cost structure.
- Unbundling – Vertical Structures Separation  
Dividing or unbundling services is a process of splitting up into legal, financial and operating parts. The integrated company's services are



divided in a way that it is possible to evaluate them independently from each other (distribution, commercial and manufacturing activity). The process of unbundling enables an equal access for all companies and secures fair prices through the cost allocation to a specific company's activity.

- Tariff – Determining and Approving Rates

Determining tariffs for transportation or storage in order to get access to the infrastructure should be transparent and not-discriminating for every market participant. The operating costs of a transmission company rises with the distance. Hence, OECD recommends distance rates in order to create appropriate incentives for investors. While in terms of distribution networks, where determining the routes of the transport of gas for the given seller is practically impossible, OECD recommends rates regardless of the distance (point to point, entry-exit, postage-stamp).

- Regulator – The Role and Type  
OECD also suggests that entitlements of the regulator should be transferred to the institution which is completely independent. Relations between the regulator and the institution are responsible for protecting the competition.

### INITIAL SITUATION

Without implementation of best practices mentioned above we are dealing with the vertically integrated market – monopoly. Such market is characterized by the lack of competing producers as a result of the lack of authorized recipients. Moreover, all functions of the gas sector from upstream to retail sale are concentrated in one subject and regulated. Actually in Poland there is a Single Buyer Model of the gas market. On this market there are: trade agreements, central position of Transmission System Operator (Gaz-System S.A.). Moreover, Single Buyer Model allows for

the competitiveness increase between producers.

The best practices mentioned above tend to direction of creating the fully competitive retail market.

### OBJECTIVES

- Suppression of cross subsidizing, i.e. covering one kind of activity expenses (or one kind of customers) with income from other activity (or customer groups)
- Introduction of rates which will be not-discriminating for each market participant

### FINANCIAL AND LEGAL FRAMEWORK

Due to the integration to the European Union, the Polish industry adjusted its technical regulations to European Union valid regulations. These regulations involve the following points:

- Functional general recommendations
- Steel used for constructing gas pipelines has to be produced according to A and B class pipes requirements
- Polythene which is used as a construction material for gas pipelines need to fulfill specific requirements
- Situating gas pipelines – Standards allow only particular types of pipelines (tunnels, channels, on bridges, flyovers)
- Gas station requirements
- Compressor stations of gas need to be designed in respect to safety rules, fire precautions and environmental requirements
- Gas storage – natural gas can be stored both in pressure/cryogenic reservoirs and in geological systems

### RESULTS AND EVALUATION

- Development of feedstock and target markets for chemical goods
- Creation of a fully competitive retail market with suppliers' variety

## LESSONS LEARNT

### ADDITIONAL INFORMATION

- Guidelines of Good TPA Practice 1 (GGTPAP-1) – 2002,
- Guidelines of Good TPA Practice 2 (GGTPAP-2) – 2003,
- Guidelines of Good Practice for Gas Balancing (GGPGB) – 2006,
- Guidelines for Good Practice on Open Season Procedures (GGPOS) – 2007.
- In technical level the best practices are described in:
  - Functional general recommendations – PN-EN 12007 – 1,
  - Construction of steel gas pipes – PN-EN 10208 - 2 + AC and PN-EN 10208 – 1,
  - Construction of polyethylene pipes – PN-EN 155,
  - Arranging the gas pipeline in the field – PN-EN 12007 – 1,
  - Situating gas pipelines – PN-EN 1594 and the EN 12001,
  - For gas station requirements – PN-EN 12186,
  - Compressor gas stations – PN-EN 12583,
  - Gas storing – EN 1918-1>5.
  - Homepage: [www.pgnig.pl](http://www.pgnig.pl)

## 4 Summary