IMPLEMENTATION OF REACH IN THE NEW MEMBER STATES

PART ONE
OVERVIEW OF THE CHEMICAL AND SPECIALTY CHEMICAL SECTOR IN THE NEW MEMBER STATES

July 2005

Editors:
IPTS

Authors:
Fraunhofer ISI, Germany (Operating Agent)
Progress and Business Foundation, Poland
Mr. Ralf Nordbeck, Consultant, Austria
IPTS, Spain

With contributions from:
Baltic Environmental Forum BEF, Latvia
Ökopol, Germany

European Commission

Joint Research Centre (DG JRC)

Institute for Prospective Technological Studies

http://www.jrc.es

Legal notice

Table of Contents

A. ABBREVIATIONS

Acquis	Acquis Communautaire
CEFIC	Conseil Européen de l'Industrie Chimique (European Chemical Industry Council)
CEFTA	Central Europe free trade agreement (Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia)
CMR -	Carcinogenic, Mutagenic and Reprotoxic
CSR -	Chemical Safety Report
CZ	Czech Republic
CZK	Czech Koruna
DU	downstream user
EE	Estonia
EEC	European Economic Community
EMAS	eco-management and audit scheme
EU	European Union including the 10 New Member Sates
EU-15	European Union with the 15 member states before 1 May 2004
EU-15	European Union with the member states before 1 Mai 2004
ECB	European Chemicals Bureau
EU	European Union
EINECS	European Inventory of Existing Commercial Substances
F	formulator of preparations
GDP	gross domestic product
GZS	Chemical Industries Association of the Chamber of Commerce and Industry of Slovenia
GLP-	Good Laboratory Practice
HPV	high production volume
HSE	health, safety and environment
IA	Impact Assessment
IA	impact analysis
IHCP	Institute for Health and Consumer Protection of DG JRC

IPPC	integrated pollution prevention and control
JRC	Joint Research Centre of the European Commission
LPV	low production volume
M/I	manufacturer and importer of substances
Mio.	million
ME	Ministry of the Environment
NaOH	sodium hydroxide (caustic soda)
NACE	Nomenclature statistique des activités économiques dans la Communauté européenne
NGO	non governmental organisation
NPV	net present value
NMS	New Member States (of the European Union)
OHSAS	occupational health and safety assessment series
OSOR	One Substance One Registration
PL	Poland
PLN	Polish Zloty
PTB	Persistent, Toxic and Bioaccumulative
QSAR	Quantitative Structure-Activity Relationship
R&D	Research and development
RoW	rest of the world
RPA	Risk & Policy Analysts Ltd., Loddon
REACH –	Registration, Evaluation, and Authorisation of Chemicals
RIS	REACH impact studies
SDS	Safety Data Sheet
SIEF	Substance Information Exchange Forum
SME	Small and Medium Enterprise
SCHP	Association of Chemical Industry of the Czech Republic
SU	Soviet Union
UNICE	Union des Industries de la Communauté européenne

VCI	Verband der chemischen Industrie
VPVB	Very Persistent and Very Bioaccumulative
VOC	volatile organic compounds

B. BACKGROUND, OBJECTIVES AND APPROACH

Background

This study was carried out under the Memorandum of Understanding (MoU) between the European Commission and industry (UNICE/CEFIC) concerning the complementary work for the Impact Assessment of REACH.

According to the Memorandum of Understanding, three areas for further analysis were identified:

- Analysis of the potential impacts of REACH on business throughout the supply chain
- Analysis of the potential impacts of REACH on innovation.
- Analysis of the potential impacts of REACH on New Member States

Under the framework of the MoU, a Working Group, chaired by the Commission was created to monitor the progress of the studies. The Working Group consists of representatives of industry, trade unions, as well as environmental and consumer NGOs.

Objectives

The study contributes to the last point of the complementary work through a general analysis of potential impacts of REACH in the New Member States, illustrated by techno-economic case studies of the ability of specialty chemicals companies in selected countries to implement REACH. This ability was examined from different angles: From the economic aspect, the impact on costs and prices was analysed, substance withdrawal, administrative impact, capacity needs and the competitiveness on European and international markets. From the technological point of view the impact of REACH on innovation, replacement of substances and process adaptation was examined. The strategic analysis looked at alternatives to cope with REACH (such as the import of components, relocation to non-EU countries etc.), the potential of companies to adapt to the changing legal framework (including the implementation of the environmental acquis) and the relative importance of REACH amongst different drivers for change.

Approach

In agreement with the Working Group, the general analysis was carried out from three different perspectives[1]. Firstly, a general overview of the chemical sector in all New Member States provided key macroeconomic data for the description of the chemical sector as a whole in each of the countries. This included the sectors development, major developments including trade with EU and non EU, and a description of sub-sectors according to NACE categories. Secondly, the impact on the chemical industry through the implementation of the Chemicals Acquis and the Accession to the EU was analyzed, and the implications for the adoption of REACH were pointed out. Thirdly, a comparative analysis of REACH Impact studies already carried out in the New Member States was done.

For the illustrative case studies, which are summarised in this document, the specialty chemicals sector was chosen in agreement with the CEFIC and UNICE in the context of the Working Group. Companies in this sector usually handle large numbers of substances, often in lower volume than basic chemicals, which are developed in close co-operation with their customers, and are by nature rather innovative. As the objective of this report was to identify potential impacts of REACH on the chemical sector in the New Member States, it seemed most appropriate to concentrate the analysis on the specialty chemicals sub-sector.

[1] See "Implementation of REACH in the New Member States – Summary part two"

In discussion with CEFIC and representatives from all CEFIC member associations in the New Member States, Poland, the Czech Republic agreed to participate in the case study part of this exercise, as the share of the chemicals sector in overall manufacturing as well as the size of the specialty chemicals sub-sector in these countries were identified as being appropriate for the envisaged analysis. At a later stage an agreement with Estonian public authorities and the chemical industry association was achieved to include this country in the analysis, following the same methodology as previously agreed with the other two countries.

This methodology comprised the horizontal analysis of the specialty chemical sector in the selected countries through desk research, interviews with the respective national CEFIC member associations and with a number of formulators of specialty chemical preparations. This analysis should be complemented by one vertical value chain analysis per country, to be defined in co-operation with the companies and industry associations.

The selection and contact of companies in Poland and the Czech Republic was done by chemical industry associations at European and national level. Two companies were mediated by Eurocommerce and DUCC, both participants in the Working Group. The companies in Estonia were chosen by the Estonian ministry of economic affairs and communication, in co-ordination with the national chemical industry association. The resulting sample of companies included manufacturers and importers of substances as well as formulators. No downstream users were identified, as none of the participating enterprises agreed to establish contacts to their customers in the frame of this exercise. All companies were interviewed on the basis of a standardised questionnaire. Questions addressed the issues of competitiveness, innovation, HSE management, product portfolio development, and impacts from accession to the EU.

The preparations and substances selected for further analysis under the methodology agreed in the Working Group were exclusively chosen by the participating companies, according to the criteria provided to them to identify the appropriate specialty chemicals preparations and/or substances. Although no value chain for individual substances could be constructed from supplier to downstream user level, vulnerability of substances and subsequent impacts for formulators could be analysed in all countries.

The results were analyzed and assembled in individual country reports. The joint analysis with the outcome of the general analysis allowed then to derive conclusions on the impact of REACH on the chemical sector in the New Member States.

C. SUMMARY

C.1 Chemical sector profile

During the period 1995-2004 the total economy of the NMS as a whole grew at an annual average rate of 4.3 % in terms of gross domestic product (GDP), to which the value added of the manufacturing industry contributed 20% in 2001.

The chemical industry contributed approximately 13% of the total value added of the manufacturing industry, which was about EUR 11.000 million and about 3% of its GDP in 2001. The total turnover (EUR 22.000 million in 2003) of the sector has increased by 74% from 1995 to 2003, with an annual growth rate of 3% before 1999 and more than 10% since then. As a whole, the sector employed nearly 480.000 persons, accounting for 8% of total employment for the manufacturing industry in 2001. Employment decreased slightly in the last few years, while labour productivity has been increasing though this is still about 35% of the average for the EU25.

Sector privatisation is well underway, but the largest companies are still under the process of privatisation. This generates some uncertainty to the chemical industry as a whole in terms of, among others, capital investment, product profile, as well as employment.

Total external trade flow of the NMS (export and import) in 2002 amounted to 371.000 EUR million, with a trade deficit (export minus import) of EUR 37.000 million. Trade performance (trade deficit as % of trade flow) of the NMS has continuously improved from -16% in 1996 to -10% in 2002, though still with a negative balance. In the same period, the trade performance of the NMS as a whole with EU-15 has improved even further from -16% in 1996 to -2% in 2002.

The total trade flow of chemicals in the NMS amounted to EUR 33.000 million in 2003 and has increased at an average rate of 10% per annum since 1999. The trade deficit was EUR -9.500 million, attributed by a trade surplus with non-EU15 countries of EUR 46 million and a trade deficit with EU-15 of EUR -9575 million.

All countries have a trade deficit with EU15, their main trading partner. Slovenia, Hungary and Slovakia reported trade surpluses with non-EU15 countries, and their export has been maintained relatively stable in the past years. Other countries like Slovenia and Lithuania have also an important production oriented to non EU markets. REACH may affect the competitiveness and market share in non-EU market for these NMS, if they have to increase prices to absorb the costs incurred by REACH.

Trade deficit in chemicals represents 88% (2003) of the total trade deficit of the NMS in relation to the EU-15. This includes all subsectors of NACE category 24. The trade deficit differs between these sub-sectors, but for all categories analysed in the frame of this study it was negative. This implies that chemical industry, although growing, is proving less competitive in the internal market than the other manufacturing sectors and maybe, to a large extent, unable to meet the demand of domestic industry. As a consequence, other manufacturing sectors are increasingly dependent on chemicals imported from EU15.

One of the key bottlenecks to the development of the chemical industry is the availability of feed stock and raw materials. Many substances derived from petrochemicals as raw materials particularly for the production of specialty chemicals are to a large extent imported from EU-15 as well as from Russia and Ukraine, where REACH does not apply. Many companies importing directly from the non-EU region will have to register the substances as an importer, and therefore price increases are expected. They may have constraints in obtaining data and information needed to register the substance under the REACH requirement, and therefore they may be obliged to change to suppliers within the EU.

C.2 Specialty Chemicals

In general, NMS, in comparison to the EU-15, have less specialised production of fine and specialty chemicals and account for a relatively small share in the value added of the chemical industry. In this respect, the impact of REACH is expected to be relatively less important in the NMS. However, since many producers of the non-basic chemicals in NMS do not have the scale of production and a relatively secure market position as being the case for their counterparts in EU15, they could face more difficulties and be more sensitive to REACH.

A detailed examination of the specialty chemicals sector has been carried out in the three selected countries for the case study, i.e. the Czech Republic, Poland and Estonia. The evolution of the sub-sector appears to be similar in the Czech Republic and Poland. In terms of turnover the specialty chemicals production has grown much faster than the chemical sector as a whole and such growth has been even more pronounced in terms of value added. In comparison, specialty chemicals contribute 38% and 24% to the total turnover of the chemical industry in Poland and the Czech Republic respectively.

In both countries, export and import of specialty chemicals increased with export increase much faster than import. Despite this growth there is still a trade deficit in specialties in both countries that amounts to 27% of total chemicals trade deficit in the Czech Republic and to 23% in Poland.

Data show that the chemical sector and specialty chemicals in particular in Estonia have stagnated and there has been very slow development in production and productivity. The specialty chemicals sub sector takes a prominent position within the chemical industry (50% of sector's value added). Trade with eastern non-EU countries plays a dominant role for this country, especially for specialty chemicals (74% export to non EU countries).

Trade with non-EU countries may be particularly affected by REACH. Regarding imports, the need for registration of imported raw material and the potential lack of necessary information from the supplier might force the importers to switch to EU suppliers. Regarding exports, the price increases of chemicals after registration might lower their competitiveness on markets outside the EU. Thus, due to its much larger share of exports to non-EU countries and stronger reliance on raw material imports from outside the EU, Estonia may be more affected by the implementation of REACH.

C.3 Status of transposition, implementation and enforcement of the Chemicals Acquis

Transposition of the Chemicals Acquis has been finalised in all New Member States. Countries which had finalised the transposition of the Chemical Acquis earlier had more time to experience the testing and notification procedures and requirements and are better positioned with regard to the implementation of REACH.

Responsible authorities for the implementation of the EU chemicals legislation were set up in the new Member States and the division of responsibilities between different state administrations are clear cut. Limitations still exist such as low capacities in terms of understaffing in some of the National Chemicals Bureaus, which will most probably be seriously challenged by the implementation of REACH.

Training for administrative staff on the main instruments of the EU chemicals legislation was of highest priority for all New Member States. The level of expertise gained by the risk assessors in the New Member States during the last few years is appropriate to secure the implementation of the current EU chemicals legislation. Under REACH, the number of trained risk assessors in administration might turn out to be too low. In contrary to risk assessment, risk management has

not been a priority in the New Member States in the last few years, but with transposition completed and most of the institution building problems solved this has changed recently.

A remaining challenge is the need for better coordination at the enforcement level since various inspectorates are involved in this task. The coordination of enforcement will become even more important under REACH as the new system will lead to many new classification and labelling duties for existing chemicals and the inspectorates will have to supervise the authorised chemicals and maybe a greater number of restricted chemicals.

C.3.1 Cost of compliance with the Chemicals Acquis

The costs of compliance with the Chemicals Acquis are marginal compared to the overall Environmental Acquis compliance costs. In no cases were transition periods requested for any of the Chemicals Acquis directives, consequently no financial plans had to be prepared by the NMS. This can be seen as an indication for the relatively modest financial efforts to comply with the Chemicals Acquis.

Implementation and enforcement of the heavy investment directives under the Environmental Acquis is not yet complete. As a number of countries have requested transition periods for these directives, in some cases until 2011, this effort will still be ongoing when REACH comes into force. As a result, companies in the NMS could be stressed by the implementation of two legislations at the same time.

Cost estimates for the implementation of REACH made in some NMS indicated a level of compliance costs comparable to the implementation of the Chemicals Acquis. As these cost estimates for REACH turn out to be based on average several factors higher than registration costs broadly agreed in current discussions, and cost reducing measures have hardly been taken into account, the actual cost will probably be significantly lower. Furthermore, the compliance cost for the Chemicals Acquis will partially be substituted by REACH implementation costs.

C.3.2 Acquis implementation at company level

Implementation of the Chemicals Acquis at company level is practically complete, at least in larger companies. According to company interviews the implementation effort was dealt with as a minor matter of daily business.

The number of companies applying environmental management systems in the NMS was reported to be growing steadily. Nevertheless, the number of companies officially certified according to ISO 14000 is still limited and restricted almost exclusively to large companies. However, SMEs are catching up rapidly due to competitive pressure and customer demands. Moreover, the implementation and enforcement of the Chemicals Acquis is supported in the New Member States by voluntary initiatives such as the Responsible Care programme.

The number of new substances notified between 2001 and 2004 in the New Member States is very low. Thus, the experience of manufacturers and importers with EU registrations and testing procedures is very limited in practice. However, due to the large amount of training courses provided to companies throughout the NMS, this is not regarded as a big problem for the adoption of the current EU chemicals legislation and future REACH implementation.

C.4 REACH impact assessments carried out in the NMS

Impact studies have already been completed in Poland, the Czech Republic, Slovakia, Slovenia and Lithuania, although not all of these are accessible. In Estonia and Hungary impact studies are still ongoing at the time of writing this report. Latvia will launch a study in 2005. Cyprus and Malta have neither carried out studies on the REACH impact on their industries, nor is a study planned there. It is noteworthy that the study finalised and available in Poland, which

represents by far the largest chemicals sector in the NMS, focuses on additional staff requirements needed to implement REACH and does not address direct costs for the chemical industry at all. Other studies are still ongoing in this country.

Apart from one exception, all reports aimed at estimating the direct costs of REACH for the industry are based on the number of substances to be registered, production or import volumes, and on their registration costs. One report estimates the additional employment in state institutions and private industry and its costs.

The benefits of REACH such as the impact on health and the environment and quality of life are almost entirely neglected and not included in the studies available so far.

All studies concentrate on the chemical industry. Downstream users such as textile, rubber, and automotive industries are only marginally considered in two cases, the Slovak study and the ongoing Hungarian study.

The economic analyses are focused on a direct cost calculation. The cost frame chosen by different countries for calculating registration cost varies widely, resulting in substantially different estimations of registration cost per substance. In some cases the figures are well above broadly accepted costs. Since they were the main information source for companies in the respective countries, serious worries in those companies become understandable when they assessed the impact of REACH on their product portfolio on this basis.

Value chain analyses, multi step assessment, and inter sectoral effects are lacking. The reports are in general rather static, and the technology substitution, which will be triggered by REACH, is hardly taken into account.

The registration and administrative cost ranged from EUR 22000/substance (Slovakia: domestically produced substance) to EUR 300000/substance (Slovenia: all substances). In the case of a differentiation in volume bands, the cost estimation reached levels of EUR 878600/substance (Czech Republic: substance >1000t/year) or even up to EUR 1760000/substance (Poland: substance >1000t/year). On the basis of these calculations, some of the reports came up with overall cost impact estimations for their respective countries (CZ: EUR 50-160 Million, PL: EUR 340-600 Million, SK: EUR 330-530 Million, SL: EUR 15 Million).

The results presented in most of the impact studies confirm the earlier findings on the REACH impact concerning the EU-15, in particular that large chemical companies will be able to cope relatively smoothly with the REACH requirements, while most of the SMEs may face financial and/or organisational challenges. However, as methodologies and assumptions either differ widely between countries or are not disclosed at all, results have to be interpreted with care.

D. THE CHEMICAL INDUSTRY IN THE NEW EUROPEAN MEMBER STATES

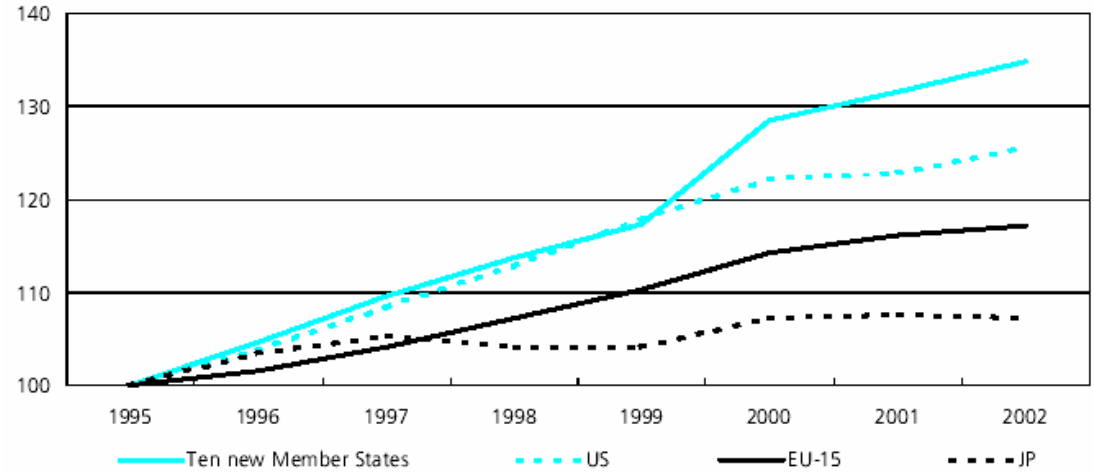
D.1 Overview of the chemical sector

D.1.1 Overview of the chemical sector in NMS

D.1.1.1 Economic background

Economic growth in the New Member States (NMS) has continued to be sustained, despite a lacklustre international environment. The consequences of the global uncertainty were felt and economic activity slowed down, but in general far less than in the rest of the EU, the main trading partner of the NMS. As a whole, NMS' gross domestic product (GDP) in constant prices was estimated at EUR 467.000 million, approximately 5% of that of EU25 in 2004. Data for the period 1995–2004 shows that GDP rose at an annual average rate of 4.3 % for the NMS, while it was 2.1 % per annum for the EU15 (see Figure 1). While GDP per capita (in PPS) has increased in most NMS, it has slightly declined in Malta and Cyprus, although the latter is still the highest among the NMS (see Figure A1 and A2. Note: all detailed facts and figures of NMS are shown in *Chapter H1. Annex 1 (Figures A1-A11)*.

Figure 1. GDP development in constant price, 1995-2002 (GDP of 1995 = 100)



Source: EUROSTAT, 2005

According to the Labour Force Survey, in 2002 there were 192 million persons that made up the EU25 workforce, of these 15% were contributed by the NMS. While the unemployment rate is still high as a result of the economic restructuring which took place, the rising path appears to have been curbed in the countries where the unemployment rate was not already declining. There is less labour shedding and, in some countries, employment creation is taking hold (DG ECFIN, 2003).

Poland, with the largest economy among NMS, amounting to 40% of the total GDP of the NMS, has maintained a stable situation after the sharp downturn of 2001 and is experiencing recovery of GDP growth rate from 1% in 2001 to 4.6% in 2004. This growth was mainly driven by export strengthened partly by the real depreciation of its currency. The unemployment rate (which is survey based, unless otherwise specified) continued to increase and almost reached 20% despite the economic recovery.

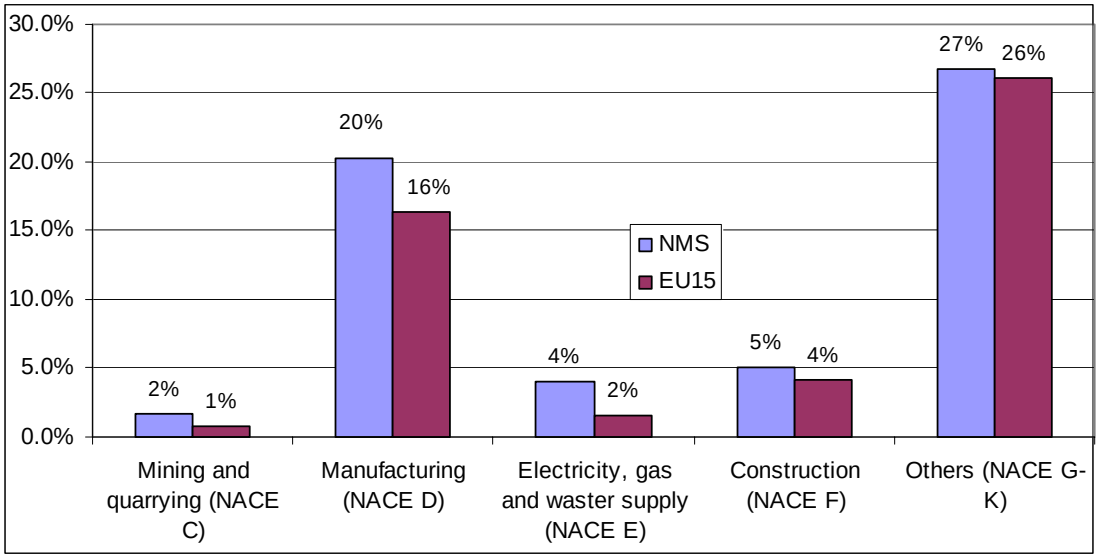
Both the Czech Republic and Hungary reported a visible upturn in 2004, which was contributed greatly by private consumption. In the case of Hungary, an overall deteriorated macro-economic

equilibrium has been observed with high fiscal deficit, declining in export and decreasing in foreign direct investment (FDI).

The Baltic States, mainly due to domestic demand, has continued strong growth with the GDP growth rate reaching 7.4% in Latvia to 8.3% in Lithuania in 2003, however this slightly slowed down to 6.1% in 2004 and unemployment rate remained in the range of 10-13%. Slovakia's economy has been improving considerably due to domestic demand although this was not fully compensated by strengthening the external growth contribution. The unemployment rate showed a slight fall in the last two years, however it remained high at approximately 17% in 2003. The three small economies of Slovenia, Malta and Cyprus, reported moderate growth rates for 2004. The downturn of the tourism industry in both Malta and Cyprus has caused weak economic performance, though it shows signs of recovery.

The value added to the NMS' **industry** sectors (NACE C to E) totalled EUR 110.000 million in 2001, which was around 26% of GDP in the NMS, and contributed 6% of the value added of total industry of the EU25. A detailed breakdown, exhibited in the Figure 2, shows that the manufacturing industry (NACE D) accounted for 20% of the GDP in the NMS in 2001, representing a higher share compared to that of EU15, which was 16%. A detailed comparison of industrial structure reveals that industrial specialisation in several, as well as a whole, of the NMS was centred on highly labour-intensive sectors, such as food products, basic metal products, transport equipment, quarrying and mining, wood, textile, etc.

Figure 2. Breakdown of value added, 2001 (share of GDP)



Source: EUROSTAT, 2005 (in the case of NMS, non-financial business economy accounted for 52% total GDP)

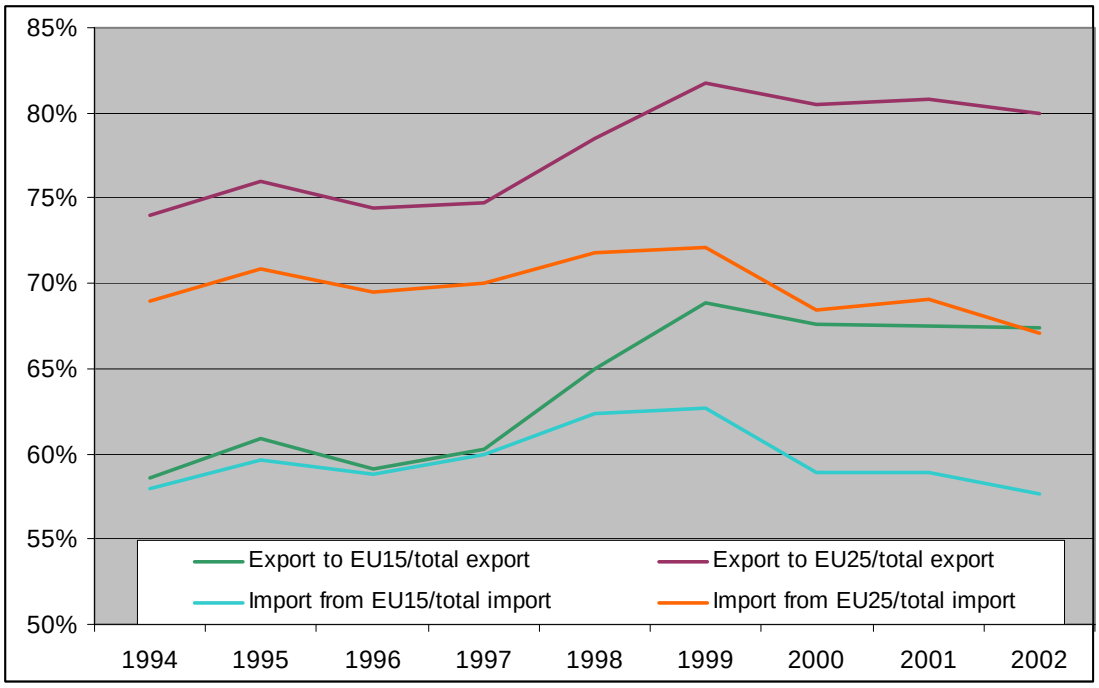
Industrial output in the NMS generally rose at a faster pace in recent years compared with the EU15 Member States. From 1998 to 2003, industrial output rose, on average, by at least 3.9 % in Estonia, Lithuania and Poland, and by 2-3% in Latvia and Slovenia.

According to structural business statistics (SBS), there were 6.6 million persons working in the NMS industrial sector (NACE C-E) in 2001, which accounted for around 9% of its total population and some 23% and 3.4% of the total employment in the NMS and EU25 respectively.

External trade statistics showed that, in 2002, the total export of NMS was EUR 167.000 million and total import of EUR 204.000 million, making a trade deficit of EUR 37.000 million. No trade surplus was reported in any of the NMS in 2002. Trade within EU25 represented 82% and 68% of the NMS' total export and import respectively. Trade flow (export plus import) of

NMS amounted to EUR 276.000 million. Of which, trade flow between NMS and EU15 represented a majority of 84%. The total export and import of the NMS to non-EU countries were, therefore, EUR 33 and 67 million, accounting for 4% and 7% of that of EU25 respectively, however, its trade deficit alone amounted to around 85% of that of EU25.

Figure 3. Trade trends in NMS



Source: Directorate-General for Information, 2004

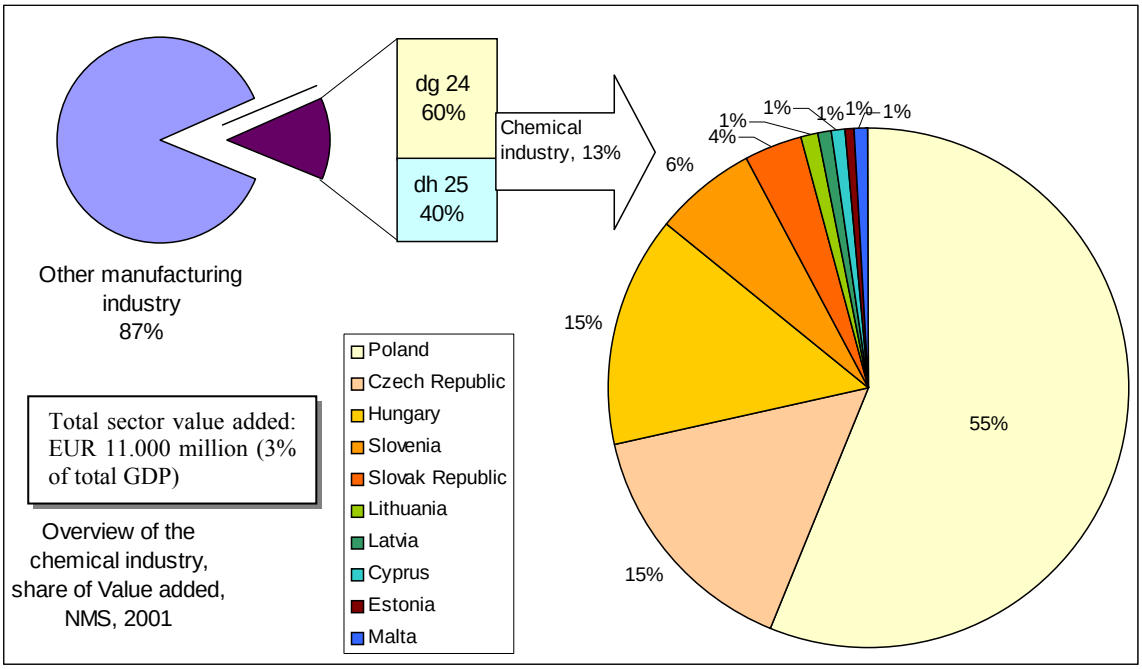
Shown in Figure 3, the share of export from NMS to EU15 has increased significantly between 1997 and 1999, and has kept stable in recent years. On the other hand, import from EU15 has decreased its share since 1999. Trade performance (export-import as % of export+import) of NMS has continuously improved from -16% in 1996 to -10% in 2002, though still with negative balance. In the same period, data shows that the trade performance of NMS as a whole with EU15 has improved even further from -16% in 1996 to -2% in 2002 (Figure A3).

D.1.1.2 Structural profile of the chemical sector

Economic significance and growth

The chemical industry (NACE dg24 and dh25, see BOX1) contributed to approximately 13% of the total value added to the manufacturing industry in NMS as a whole, which was about EUR 11.000 million and a little more than 3% of its GDP in 2001. The share of value added to the chemical industry in EU15 was a little more: 15% of the total manufacturing industry and 2.4% of GDP. Although the NMS accounted for a relatively small proportion, about 4.7% in 2001, of the total chemical industry of the EU25 in terms of value added, data from EUROSTAT show that this share has been increasing since 1999 (2.6%), mainly attributed by the 50% growth rate in the manufacturing of rubber and plastic products (dh25). Among the NMS, Poland, Hungary and Czech R. amounted to nearly 85% of the sector's total (see Figure 4), and while Poland, Lithuania, and Latvia showed a relatively more prominent increase in their share in 2001, the share of Czech Republic and Slovenia decreased (see Figure A4). However, on a country level, the significance of the chemical sector varies substantially. Its share in the total value added of the manufacturing industry ranged from 17% in Slovenia to less than 6% in Poland, and around 6-7% in the Baltic States in 2001.

Figure 4. Overview of the chemical sector in NMS, 2001

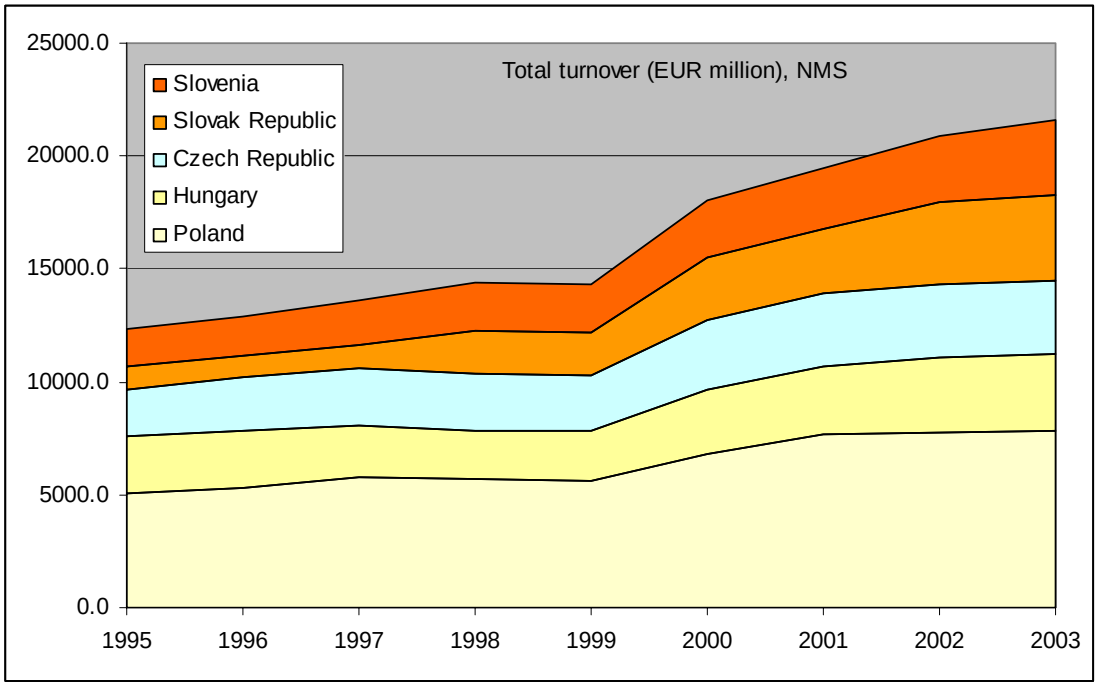


Source: EUROSTAT, 2005.

The total turnover (EUR 22.000 million in 2003, see Figure 5) of the sector has increased 74% from 1995 to 2003, with an annual growth rate of 3% before 1999 and more than 10% since then. Similar to the value added, the total turnover of the NMS contributed to about 4% of that of EU25 and this share has increased from 3% in 1999 to 4% in 2003 (CEFIC, 2004). Examining this in detail, the most prominent growth in terms of turnover can be observed in Slovakia, where it exceeded 100% in 2003 compared to 1999. This strong growth has resulted in Slovakia being the second largest share (18%) of the NMS following Poland (36%), while the share of Poland, Hungary (16%) and Czech (15%) have declined by 5% in total since 1999 (see Figure A5).

It is noted when comparing the NMS' contribution in terms of value added and turnover in EU25, the former is increasing much faster. While the share of value added nearly doubled from 1999 (2.6%) to 2003 (4.7%), the share of turnover only increased from 3.2% in 1999 to 4% in 2003. The main reasons are considered to be mainly due to the restructuring of the sector in the past few years which led to a shift of production toward more profitable products, for example in the case of Hungarian pharmaceutical products. A relatively more rapid increase of wages may have also contributed to the increase of value added in some of the NMS. Nevertheless, the higher increase of value added underlines an improved overall efficiency of the chemical industry in NMS.

Figure 5. Sector growth, turnover 1995-2003



Source: CEFIC, 2005

Production profile

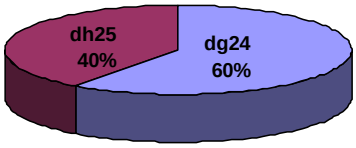
As defined in the NACE classification, there are the two main sub-sectors in the chemical industry, i.e. manufacture of chemicals, chemical products and man-made fibres and manufacturing of rubber and plastic products. More than half (60%) of the value added of the sector was generated by the first group. Taking the NMS as a whole, the manufacture of plastic products takes the largest share (30%) compared to all the other sections and this holds true on a country level. In the sub-sectors of chemical products (NACE dg24), basic chemicals (dg241), pharmaceuticals (dg244) and soap and detergents (dg245) accounted to more than 90% of its value added (Figure 6 and Figure A6). However, this situation varies significantly from country to country (see Figure A7). While, the share of production of basic chemicals is high in Lithuania and the Czech Republic, in Hungary, Slovenia and Cyprus, pharmaceutical production takes a larger share. In Poland, soap and detergents has a relatively higher value added.

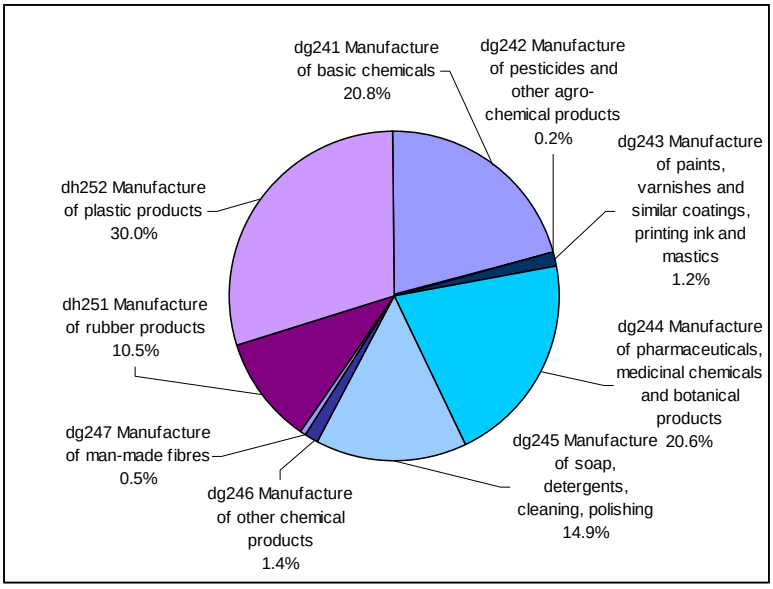
BOX 1. NACE

The manufacture of chemicals, rubber and plastics are covered by NACE Divisions dg24 and dh25. The former of these includes the manufacture of man-made fibres.

24: manufacture of chemicals and chemical products and man-made fibres;
24.1: manufacture of basic chemicals;
24.2: manufacture of pesticides and other agro-chemical products;
24.3: manufacture of paints, varnishes and similar coatings, printing ink and mastics;
24.4: manufacture of pharmaceuticals, medicinal chemicals and botanical products;
24.5: manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations;
24.6: manufacture of other chemical products;
24.7: manufacture of man-made fibres;
25: manufacture of rubber and plastic products;
25.1: manufacture of rubber products;
25.2: manufacture of plastic products.

Figure 6. Share of value added by sub-sector, NMS, 2001





See details of the data in Figure 6A.

Source: EUROSTAT, January, 2005

Poland dominated the share of value added in the two main sub-sectors (dg24 and dh25), and a further division of the sub-sectors gives a similar picture (Figure 7). Production in Poland, the Czech Republic, and Hungary amounted to more than 95% of the value added. Value added of both sub-sectors has increased in all NMS since 1999, with relatively prominent and stable growth in Hungary in both sub-sectors (Figure 8), Slovenia in chemicals products and the Czech Republic and Slovakia in rubber and plastic products (also see Figure A8).

Figure 7. Country share in value added by sub-sector, 2001

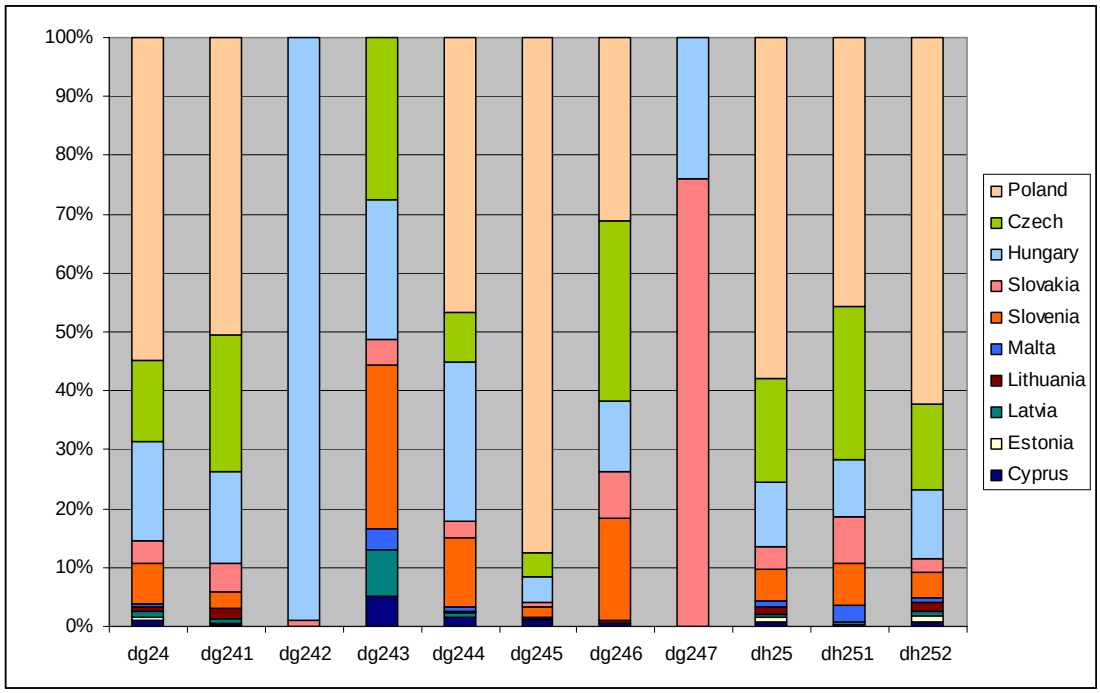
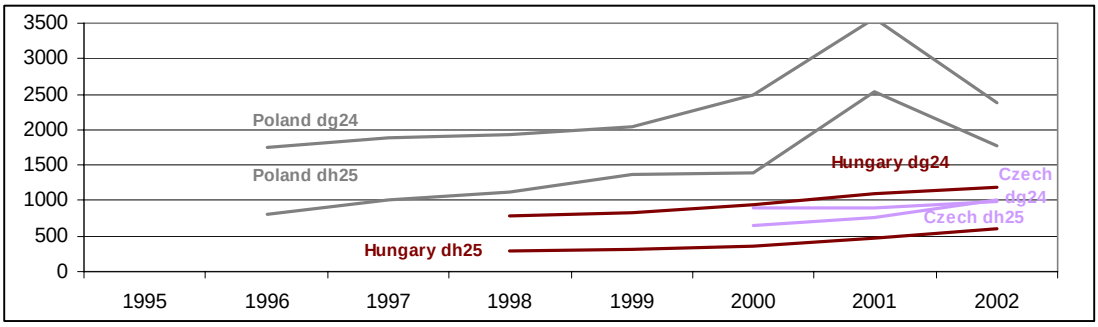
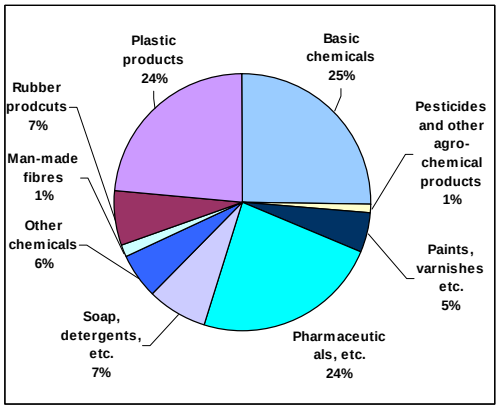


Figure 8. Growth of value added of sub-sector



Source (Figure 7-8): EUROSTAT, 2005

Figure 9. Structure profile EU25, 2001

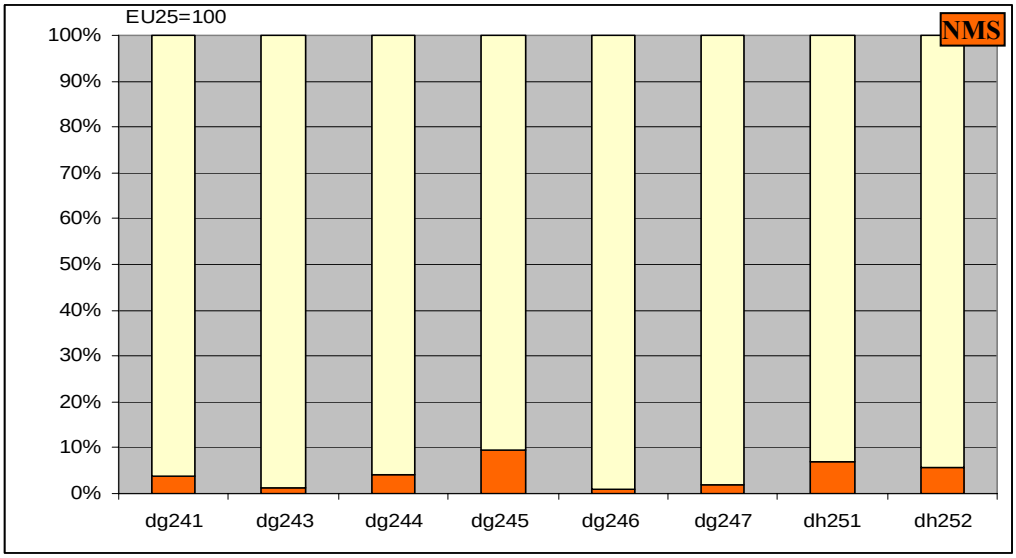


Source: EUROSTAT, 2005

Compared to the structure profile of the industry aggregated at EU25, it is noted that basic chemicals, pharmaceuticals and paints and varnishes have a relatively higher share of value added than that of NMS, while the opposite was found in soap and detergents, rubber and plastic products (Figure 9).

A detailed examination of value added shows that all sections of the sub-sectors accounted for less than 10% of that of EU25, with the production of soap and detergents (dg245) having the most significant contribution of about 9.5% followed by 7% from rubber products (dh251) and 5.8% from plastic products (dh252) (Figure 10). Due to lack of data, the trends of these shares are difficult to estimate, however, available data indicate that all sub-sectors of NMS in total have increased its share, and again most significantly in soap and detergent (from 5% to 10% in 2000-2001), except the production of paints, varnishes and similar coatings, printing ink and mastics (dg243), where no changes were recorded.

Figure 10. Share of sub-sectors in EU25, value added, 2001



Source: EUROSTAT, 2005

D.1.1.3 Employment, labour and productivity

As a whole, the chemical industry sector in the NMS employed nearly 480.000 persons, accounting for 8% of total employment of the manufacturing industry in 2001. Derived from EUROSTAT and data published by the industrial associations, the sector in the NMS employed 13% of the total workforce of EU25's chemical industry, while contributing disproportionally 4% of the sector's value added in EU25 (as discussed above). 47% of the total workforce was employed in the sub-sector of chemical products (dg24) and the rest (53%) in the rubber and plastic products (dh25). While employment in the sector has been steadily decreasing since the 90s in EU15 (CEFIC, 2004), in the NMS the situation is diverse. Although overall employment has increased by 1-3% since 2000, and mainly in the areas of rubber and plastic (NACE dh25), employment growth rate in the chemical production (NACE dg24) has been negative in most of the countries. In the same magnitude as value added, employment in Poland, the Czech Republic and Hungary dominated the sector, amounting to 80% of the total (see Figure A9).

The average apparent labour productivity of the chemical industry, e.g. value added per person employed, was EUR 21.000 in NMS in 2001, and noticeably higher for the production of chemical products (dg24), i.e. EUR 26.700, than that for the production of rubber and plastics (dh25), i.e. EUR 15.700. These figures are, however, some 35% of the respective averages for EU25. Among the NMS, Poland, Malta and Cyprus have relatively higher apparent labour productivity, while the lowest is observed in Estonia and Lithuania (Figure 11).

Figure 11. Apparent labour productivity (in EUR `000), 2001

	Manufacturing	Chemical industry	dg24	dh25
EU25	45.1	59.9	84.1	43.2
NMS		21	26.7	15.7
Czech Republic	10.7	15	20.9	12.2
Estonia	8	9.2	14.6	9.9
Cyprus	25	27	36.3	24.3
Latvia	10.6	13.4	13.8	12.4
Lithuania	5.5	9.2	8.8	7.7
Hungary	12.2	17.6	30.5	12.7
Malta	23.8	25.5	31	25.4
Poland	16.1	27.8	33.9	14.7
Slovenia	17.4	23.1	36.7	19.5
Slovak Republic	9.3	11.6	12.6	11.2

Source: The chemical industry in the EU, EUROSTAT, 2004; EUROSTAT, 2005

In general, all NMS showed improvement in productivity in the last few years and due to starting at a lower lever, productivity is expected to increase continuously. The number of people employed in the sector is difficult to foresee, while low wages, in comparison to EU15, do not encourage investment in productivity. However, in general whenever investors took over stock share, a decrease in employment usually followed. On the other hand, increased production, especially in rubber and plastic production, has attracted new installation, and therefore more employees are need.

Over 21.000 enterprises, accounting for 24% of that of the EU25, were registered in the chemical sector in the NMS in 2001, of which nearly 76% were involved with the production of rubber and plastics (NACE dh25) (Figure A10). 55% of all enterprises in NMS were located in Poland (the second largest number of enterprises in EU25 after Italy in the chemical industry). Due to privatisation and sectoral restructuring the average size of individual enterprises decreased. Majority of the enterprises are in the smaller size category employing less than 250 employees. Less than 2% of these enterprises (about 200 units in 2000) (Figure 12) have more than 250 employees, of which 79 units were found in Poland in 2000. The highest share of larger enterprises was recorded in Slovakia (12.8%), followed by Hungary (8%) in the production of chemical products (NACE dg24). Value added generated by small companies

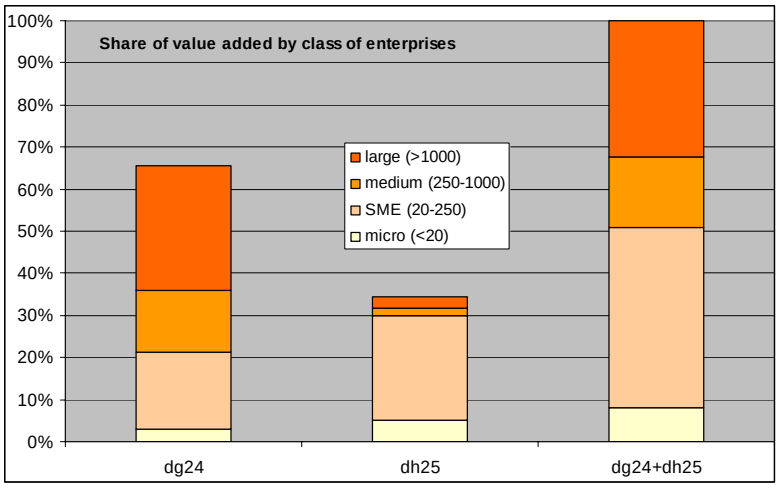
(SME and micro enterprises) equalled to that by medium and large companies, as shown in Figure 12, while 87% of the value added of dh25 came from SMEs and micro enterprises.

Figures 12. Business structure by class of enterprises of NMS, 2000

Figure 12.1 Class of enterprises in share

NMS	micro (<20)	SME (20-250)	medium (250-1000)	large (>1000)	total
dg24	18.8%	4.9%	0.6%	0.3%	24.6%
dh25	64.3%	10.9%	0.2%	0.0%	75.4%
dg24+dh25	83.1%	15.8%	0.8%	0.3%	100.0%

Figure 12.2 Value added in share



Source: EUROSTAT, 2005

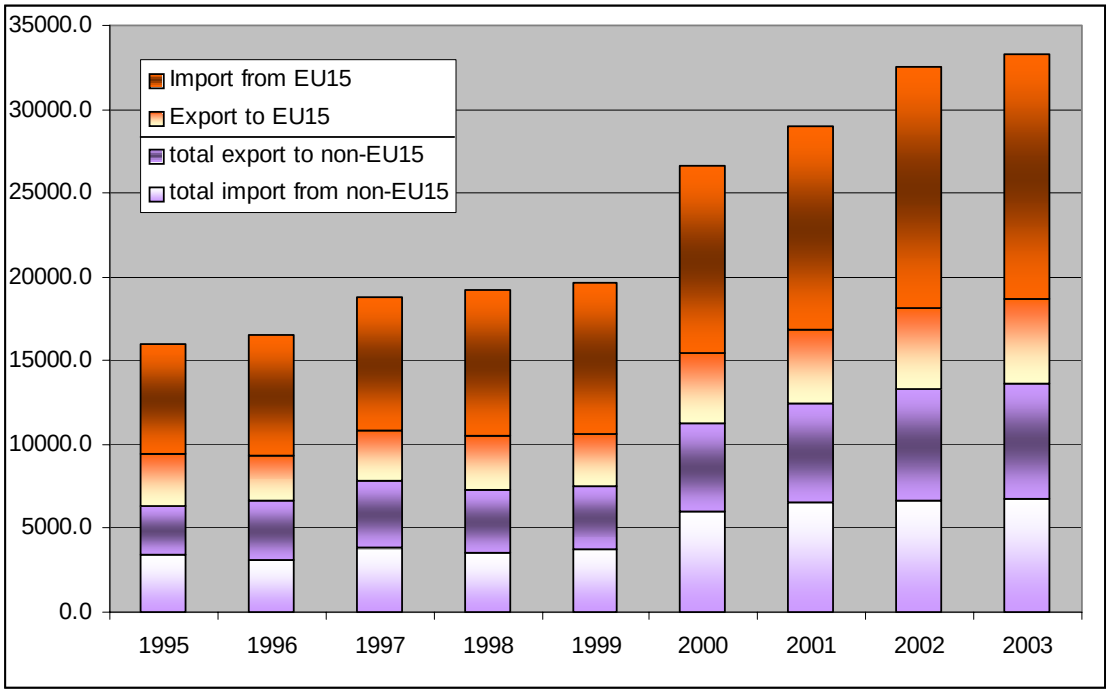
D.1.1.4 Research & Development

In general, chemical companies of the NMS have well qualified personnel and good links with technical institutes, which implies a well established condition in the field of R&D and innovation, which are crucial particularly to the development of specialty chemical products. Scattered pieces of information shows that the share of R&D expenditure in value added has kept relatively stable in recently years, though the share as well as the number of R&D personnel is still small compared to EU15, except in Slovenia and Slovakia, where the figures are comparable.

D.1.1.5 Trade and market

Total trade flow (total export and total import) of chemicals in NMS amounted to EUR 33.000 million in 2003 and has increased at an average rate of 10% per annum since 1999 (Figure 13 and Figure 11A). Total trade balance (export minus import) was EUR -9.500 million, attributed by trade surplus of EUR 46 million with non-EU15 countries and trade deficit of EUR -9575 million with EU15. Only Slovenia reported an overall trade surplus of EUR 80 million in 2003, with its trade surpluses of EUR 830 million with non-EU15 countries, while Hungary and Slovakia also reported trade surplus with non-EU15 countries. As indicated by the figures, the trade flow of the sector with EU15 was around 60% of the total trade flow and this share has been stable in the past years.

Figure 13. Trade of chemicals in NMS (in EUR million)



Source: CEFIC, 2005 (data for Poland, Czech Republic, Hungary, Slovak Republic and Slovenia only)

Import and export with EU15

The trade flow of chemicals represented 8.6% of the total trade flow of commodities between NMS and EU15 in 2003. The total export of chemicals of the NMS to EU15 was nearly EUR 5.000 million in 2003 and the total import, over EUR 16.000 million, was more than three times the export (Figure 14). The trade deficit of chemicals with EU15 has increased by 61% since 1999 (Figure 14) and when using trade performance as an indicator, the total trade deficit of NMS amounted to 54% of the sector's total trade flow in 2003 (Figure 14). This implies that the total deficit in the trade of chemicals (in 2003) with EU15 was a little more than the total value added of the chemical industry (in 2001) of the NMS. All NMS had a negative trade balance with EU15 and this trade deficit of chemicals in Poland accounted for 70% of its total trade deficit with EU15. Comparing the trade of all sectors between NMS and EU15, it is noted that the trade deficit in chemicals was the single largest attributor of the total trade deficit of NMS in relation to EU15, amounting to 88% in 2003. Moreover, in some of the sectors, down stream user of the chemical industry, such as the textile and telecommunications, NMS are net exporters to EU15. This further implies that the chemical industry is evolving at a much slower pace than the other manufacturing sectors and may be, to a large extent, unable to meet the demand of domestic industry. This is the case, for example, for the plastics products in the Czech Republic, where the domestic demand could not be covered by production and resulted in an increase of imports. Furthermore, the relatively strong sections of the chemical industry, such as rubber products, has had a moderate increase in exports due to the slow recovery of the automobile industry in EU15, the major trade partner (Industry Panorama, Czech Republic, 2005).

In Poland, several issues are seen to be the causes of such a high trade deficit. First, the availability of raw material (feedstock) of the chemical industry, mainly natural gas and petrochemicals, is a key issue for the industry. After switching from coal derived feedstock to natural gas, and 75% of the natural gas in Poland comes from Russia, chemical industry has become highly dependent on imports, which hampers accelerated sectoral development. Although there has been no unexpected increase in price till now, the supply of raw material may be a bottleneck in sectoral expansion if the chemical industry is to meet the demand from other manufacturing sectors. In the recent past, large financial investments have been focused

on the modernisation of products and processes in the chemical industry, which are more driven by regulations than by profit. Thus the attempts to attract FDI have been less successful than in some of the other sectors, and even less successful in the direction of product diversification with FDI, which resulted in leaving big share of the growing market to import.

In Hungary, the structure of the chemical sector is still considered "unhealthy", with large production of a few commodities and a small share of specialty chemicals (NACE dg24), and importing majority of the raw material from EU15. The production of rubber and plastics is relatively better positioned, since polymers are produced both in country and imported from EU15.

Figure 14. Details of trade of chemicals between NMS with EU15 (in EUR million)

	Export to EU15 (chem.)	% of total Export to	Import from EU15 (chem.)	% of total Import from	Trade balance	Trade performance*
Poland	1322.1	4.2%	6237.9	16.3%	-4915.8	-65.0%
Hungary	1297.8	5.0%	2783.5	10.7%	-1485.8	-36.4%
Czech R.	1145.9	3.8%	3531.9	11.7%	-2386.0	-51.0%
Slovak R.	375.7	3.0%	968.1	9.6%	-592.3	-44.1%
Slovenia	359.3	5.0%	1045.1	11.7%	-685.8	-48.8%
Lithuania	243.1	7.9%	566.2	13.4%	-323.1	-39.9%
Estonia	61.8	2.0%	376.1	10.6%	-314.4	-71.8%
Cyprus	41.5	4.8%	330.2	11.3%	-288.7	-77.6%
Latvia	20.0	1.0%	324.1	12.1%	-304.1	-88.4%
Malta	12.5	1.3%	199.6	7.9%	-187.0	-88.2%
NMS	4879.6	4.2%	16362.7	12.6%	-11483.0	-54.1%

Source: DG for information, 2004 (* Trade performance=export-import as % of export+ import. Note: data in this table may be different from that of CEFIC)

Trade with non-EU countries

The trade of chemicals between NMS and non Union countries has been on balance with a small surplus since 1996 except during 2000-2001 (Figure 13 and 11A). The total trade flow of chemicals was EUR 13.700 million in 2003, which represented 14.3% of the trade flow of all commodities with non-EU countries.

Trade performance, as listed in Figure 15, shows that the trade balance in chemicals and chemical products was negative in all NMS, while Lithuania, Slovenia and Malta had trade surpluses in rubber and plastic products.

Figure 15. Trade performance in chemicals with non-EU countries, 2002

Trade by subsector	**dg24**	**dh25**	**chemicals**
Poland	-45.0%	-17.8%	-35.4%
Hungary	-31.8%	-22.7%	-28.5%
Czech R.	-27.0%	-6.3%	-18.4%
Slovak R.	-14.3%	-3.1%	-10.5%
Slovenia	-41.0%	10.6%	-20.8%
Lithuania	-20.8%	35.6%	4.6%
Estonia	-51.6%	-44.3%	-48.7%
Cyprus	-86.0%	-81.4%	-84.5%
Latvia	-71.3%	-74.3%	-72.4%
Malta	-77.3%	9.2%	-38.6%
EU25	21.2%	9.2%	18.7%

Source: EUROSTAT, 2005

While the overall trade performance of the NMS with EU15 (Figure A3) has improved, as discussed previously, the trade performance of chemicals (Figure A11) has been deteriorating, from -44% in 1996 to -49% in 2003. On the other hand, trade performance with non-EU15 countries has improved in general in the past few years, except for a trade deficit in 2000-2001, and there has been trade surplus for NMS as a whole. As a result, the overall trade performance of the NMS stayed relatively unchanged in the ranged of -30% to -28% since 1999. Taking into account the sector's increasing value added in the NMS, these data imply an overall increase in own consumption and a better position for the industry in the non-EU market.

D.1.1.6 Sub-sectors

D.1.1.6.1 The manufacture of chemicals and chemical products and man-made fibres

NACE 24.1 and 24.2: The manufacture of basic chemicals and the manufacture of pesticides and other agrochemical products

The manufacture of basic chemicals (dg241) covers the manufacturing of industrial gases, dyes and pigments, basic chemicals and fertilisers, as well as a primary form of plastics and synthetic rubber. The total value added of this section was over EUR 2.200 million in 2001, which was 20.8% from that of the total chemical industry in the NMS and employed around 79.000 people. It accounted for about 3-4% of both turnover and the value added and 12.4% of employment from that of EU25 (Figure 16). Its apparent labour productivity was reported for 2001 and varied from EUR 7.500 in Estonia to EUR 38.000 in Cyprus, however, compared to the EUR 94.000 of EU25 average, labour productivity was very low. Data indicate that there is a fall (-2%) in turnover and an even greater decline of value added (-8%) in this section from 2000 to 2002. A similar trend has been observed at EU25 level, although the decrease is less in both turnover (-1.4%) and value added (-5%).

Figure 16. Main Indicators, NACE dg241

Manufacture of basic chemicals (dg 241)
Main indicators in NMS

	2000	2001	2002	2001 EU25
Number of enterprises	1200	1579	1712	7779
Turnover (EUR million)	7941	8127	7759	250191
Value added (EUR million)	1974	2239	1818	59663
Personnel costs (EUR million)	589	843	1067	30640
Number of persons employed*	50066	48735	78837	635300

** Data from 2000 and 2001 excluding Poland*

Data from Poland, representing more than half of the dg241's value added, indicate a more prominent growth of turnover than value added, which implies that the overall efficiency of this section seems to have deteriorated in the past few years.

Within the dg241 section, the biggest share of the value added came from the production of primary form plastics (27%), followed by the production of fertiliser and nitrogen compounds (26%) and industrial gases (14%).

Very few data are available on the dg242 section, however, its value added to the chemical industry is expected to be less than half a % in the NMS, while it contributed to less than 1% for that of EU25 as a whole in 2001.

NACE 24.3: The manufacture of paints, varnishes and similar coatings, printing ink and mastics

The total value added of this section was over EUR 130 million in 2001, which was 1.2% of that of the total chemical industry in the NMS and employed around 6.000 people. It accounted

for about 1-1.5% of both turnover and the value added and 3.3% of employment from that of EU25 in this section (Data for Poland are not available from 2000 onwards). The apparent labour productivity was reported to be about EUR 20.000 for both the Czech Republic and Hungary, which was less than one third of that from EU25 average (EUR 64.000). Data indicate that both turnover and value added have increased 27% and 36% respectively in this section from 2000 to 2002. Similar trends on value added have been observed at a EU25 level with a 6% increase (2000-2001), although turnover, on the contrary, has decreased, -2%.

Figure 17. Main Indicators, NACE dg243

Manufacture of paints, varnishes, printing ink, etc. (dg 243)
Main indicators in NMS

	2000	2001	2002	2001 EU25
Number of enterprises	215	267	336	4316
Turnover (EUR million)	544	588	696	39815
Value added (EUR million)	120	132	163	11453
Personnel costs (EUR million)	50	74	83	6845
Number of persons employed	6127	6058	7223	179400

Data excludes Poland

NACE 24.4: The manufacture of pharmaceuticals, medicinal chemicals and botanical products

The total value added of this section was over EUR 2.000 million in 2001, 20.6% for that of the total chemical industry in the NMS and employed around 55.000 people. It accounted for about 3-4% of both turnover and the value added and 10% (2002) of employment from that of EU25. Its highest apparent labour productivity was reported to be about EUR 56.000 in Slovenia in 2002, and the average was around EUR 35.000, which was 35% from that of EU25 average (EUR 99.000). Data indicate that both turnover and value added have increased by 25% and 32% respectively in this section from 2000 to 2002. Similar trends on have been observed at a EU25 level showing an 8% (2000-2001) increase in both turnover and value added.

Figure 18. Main Indicators, NACE dg244

Manufacture of pharmaceuticals, etc. (dg 244)
Main indicators in NMS

	2000	2001	2002	2001 EU25
Number of enterprises	478	522	470	3969
Turnover (EUR million)	3737	4461	4684	157148
Value added (EUR million)	1552	2214	2044	54744
Personnel costs (EUR million) (a)	666	860	1148	27116
Number of persons employed (b)	29310	28913	54976	553600

(a) Data from 2000 excluding Czech; (b) Data from 2000 and 2001 excluding Poland

NACE 24.5: The manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations

The total value added of this section was over EUR 1.000 million in 2001, 10% from that from the total chemical industry in the NMS and employed around 37.000 people. It accounted for about 6% and 9% of the turnover and value added respectively, and 14% (2002) of employment from that of EU25. Poland, on its own, attributed to 75% of the section's value added. The apparent labour productivity was reported to be about EUR 30.000 in Poland in 2002, which was less than half that of EU25 average (EUR 65.000 in 2001). Data indicate that turnover has increased 32% and at a low level, value added has increased 25% in this section from 2000 to 2002. Similar trends have been observed at a EU25 level though much lower, 4% of turnover and 1.5% of value added (2000-2001). It is noted that the domestic consumption of household

chemicals has decreased by more than 50% in the last three years, and in current prices this amounted to EUR 480 million in 2001 to 220 million in 2003.

Figure 19. Main Indicators, NACE dg245

Manufacture of soap, detergents, cleaning, polishing (dg 245)
Main indicators in NMS

	2000	2001	2002	2001 EU25
Number of enterprises	1351	1258	1354	7757
Turnover (EUR million)	3200	3807	4242	66278
Value added (EUR million)	813	1602	1017	16937
Personnel costs (EUR million) (a)	290	372	609	9871
Number of persons employed (b)	10396	10352	37101	260000

(a) Data from 2000 excluding Czech; (b) Data from 2000 and 2001 excluding Poland

NACE 24.6: The manufacture of other chemical products

This section mainly includes the production of explosives, glues and gelatines, essential oils, photographic chemical material prepared unrecorded medias.

The total value added of this section was over EUR 150 million in 2001, 1.4% from that of the total chemical industry in the NMS and employed around 12.500 people. It accounted for about 1% of the turnover and value added, and 4% from employment of that of EU25. Data indicate that both turnover and value added have increased by 34% and 46% respectively from 2000 to 2002. On the contrary, a declining trend has been observed at EU25 level in both turnover and value added, showing -2.5% and -4% (2000-2001) respectively.

Figure 20. Main Indicators, NACE dg246

Manufacture of other chemical products (dg 246)
Main indicators in NMS

	2000	2001	2002	2001 EU25
Number of enterprises	608	811	848	6713
Turnover (EUR million)	515	578	693	49893
Value added (EUR million)	129	147	189	13958
Personnel costs (EUR million)	46	90	113	8911
Number of persons employed	7558	8799	12548	209200

Data excluding Poland

NACE 24.7: The manufacture of man-made fibres

Data in this section for most NMS are lacking. Therefore, the analysis hereafter mainly refers to the situation in Hungary and Slovakia. The total value added of this section has been the smallest, and was less EUR 80 million, half a % from that of the total chemical industry in the NMS and employed around 5.000 people in 2001. It accounted for about 2% of both turnover and the value added and 8% of employment from that of EU25. The apparent labour productivity was reported to be more than EUR 10.000, which was 20% of that of EU25 average (EUR 50.000). Data indicate that both turnover and value added have increased with 42% and 37% respectively from 2001 to 2002. On the contrary, a declining trend has been observed at EU25 level in both turnover of -10% (2001-2002) and value added of -14% (2000-2001).

Figure 21. Main Indicators, NACE dg247

Manufacture of man-made fibres (dg 247)
Main indicators in NMS

	2000	2001	2002	2001 EU25
Number of enterprises *	21	28	29	348
Turnover (EUR million)	179	270	383	13473
Value added (EUR million)	32	57	78	3092
Personnel costs (EUR million)	23	32	48	2218
Number of persons employed	4457	4999	6195	62600

*Data from Hungary (2001-2002) and Slovakia; * Data including Czech*

D.1.1.6.2 The manufacture of rubber and plastic products

NACE 25.1: The manufacture of rubber products

This section includes the manufacture of rubber tyres and tubes, retreating and rebuilding of rubber tyres, and other rubber products. The total value added of this section was over EUR 1.200 million in 2001, 11% of that of the total chemical industry in the NMS and employed around 64.000 people in 2002. This section accounted for about 7% of the turnover and value added, and 18% of employment in 2002 from that of EU25. Data indicate that both turnover and, at a lower level, value added have increased by 49% and 34% respectively from 2000 to 2002. In the same period an increase of turnover has been observed at a EU25 level, though at a much lower level of 4%. Value added (2000-2001), on the other hand, has decreased by a little more than -1%.

Figure 22. Main Indicators, NACE dg251

Manufacture of rubber products (dg 251)
Main indicators in NMS

	2000	2001	2002	2001 EU25
Number of enterprises	1636	1898	1740	7397
Turnover (EUR million)	3027	3753	4520	50111.1
Value added (EUR million)	881	1134	1177	16164.5
Personnel costs (EUR million)	357	541	754	11764.5
Number of persons employed *	31479	34900	64199	359100

** 2000 and 2001 not including Poland*

NACE 25.2: The manufacture of plastic products

This section includes the manufacture of plastic plates, sheets, tubes and profiles, plastic packing goods, builders' ware, and other plastic products. The total value added of this section was over EUR 2.800 million in 2001, 30% of that from the total chemical industry in the NMS and employed around 200.000 people in 2002. The section accounted for about 6% of the turnover and value added, and 16% of employment (2002) from that of EU25. Data indicate that both turnover and value added have increased by 30% and 39% respectively from 2000 to 2002. An increase in turnover and value added has also been observed at a EU25 level, though at a much lower level of 5% (2000-2002) and 3% (2000-2001) respectively.

Figure 23. Main Indicators, NACE dg252

Manufacture of plastic products (dg 252)
Main indicators in NMS

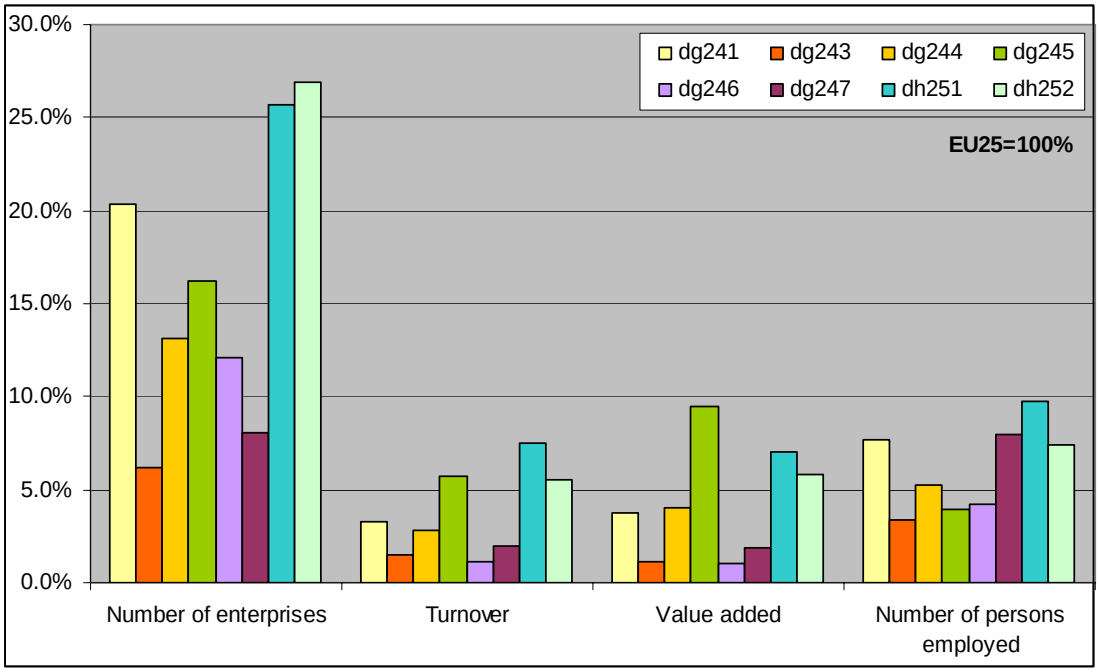
	2000	2001	2002	2001 EU25
Number of enterprises	13152	14665	14657	54457
Turnover (EUR million)	8132	9560	10615	171458
Value added (EUR million)	2035	3228	2830	55321
Personnel costs (EUR million)	851	1232	1822	36321
Number of persons employed	85490	96124	204230	1296300

** 2000 and 2001 not including Poland*

Comparing all the sections discussed above (Figure 24), it shows that the manufacture of soap and detergents (dg245) has the highest share in terms of value added followed by rubber (dh251) and plastic (dh252) products, while its number of employment is one of the lowest., implying relatively high labour productivity. Overall, a higher share of employed persons than share of turnover and value added in most of the sections indicates that the productivity level of the chemical industry is still low and more labour intensive than that in EU15. The share in number of enterprises in all sections is relatively high when compared with their share in number of persons employed, which indicates that the chemical industry in the NMS consists of relatively smaller companies (fewer employees per company) than that in EU15.

Based on the available information, it is difficult to examine the impact of REACH across the sub-sections. In general, NMS have little specialised production of fine and specialty chemicals and account for a relatively small share in the value added of the chemical industry. Thus, the impact of REACH is expected to be relatively less important than that in EU15. Most of the sub-sections in NACE dg24 and dh25, are considered as direct downstream users of the chemicals. Section NACE dg24.3, production of paint and varnishes, is a user of thousands of chemicals and in Slovenia, it is considered to be a vulnerable section to REACH because companies are uncertain of substance withdrawals thus unable to plan and prepare. Another argument of impact is that the number of suppliers may reduce as a result of withdrawal and cost. There is a fear of an increased dominant position of the remaining suppliers and consequently, price increase may exceed the actual REACH cost. On the other hand, in Hungary this sub-section, which consists of a limited number of multinational companies, are thought to be able to manage REACH. The production of household chemicals is expected to face similar issues under REACH, however, most companies in this sub-section are multinational, and their positions are similar across the EU. Plastic products, NACE dh25.2, typically consist of many small scale productions for niche markets and for specific customer requirement, but under REACH, if registration is need for them as downstream users, they may need to restructure their products portfolio towards high value added products and become more innovative in product design and marketing.

Figure 24. Main indicators in sub-sectors, NMS, 2001



Source (Figure 15-23): EUROSTAT, 2005

D.1.2 Main issues concerning the development of the chemical industry in the NMS and the potential impact of REACH

As discussed above, based on the best available data, the chemical industry in the NMS has experienced an overall growth in terms of turnover, value added as well as sector employment in the past few years. While the structure of the sector generally seems to vary from that of the EU15 (Figure 6 and 9), its overall significance in the manufacturing industry and as a contributor to GDP appears to be at the same level. The growth of the sector is closely comparable to that of EU15 since 2000, with a more pronounced increase in value added than in turnover. Although improving, the level of productivity and efficiency of all sub-sectors, is still well below the average of EU15. Several factors have influenced, and will continuously affect, this picture of the chemical industry in the NMS.

D.1.2.1 Resources and substance supply

For commodity chemicals (mainly basic petrochemicals), feedstock availability and price is a prime factor. In most cases, basic chemical plants tend to be located close to feedstock reserves and refinery plants. Many of the NMS are largely dependent on Russia for oil and gas, and until now this has been beneficial for some of the NMS since the price of fuel from Russia is still relatively low. However, in terms of feedstock dependency, they are therefore at a marginally disadvantagous position compared to Antwerp or Rotterdam and are significantly worse than regions such as the Arabian Gulf, which together with China, have a high growth rate in chemicals production and will significantly increase their share in the international market (CEFIC review 2003–2004). Since feedstock takes more than half of the costs in petrochemical production, the access to naphtha feedstock at a competitive price would remain a significant challenge to the chemical industry in most of the NMS.

Raw materials particularly for the production of specialty chemicals also refers to many substances derived from petrochemicals and, as discussed before, they are, to a large extent imported from EU15 as well as from Russia and Ukraine, where REACH does not apply. Many companies directly importing from non-EU regions will have to register the substances as importer. They may have constraints in obtaining data and information needed to register the

substance under the REACH requirement, and therefore they may be obliged to change to suppliers within the EU. Those suppliers within the EU would also need to register the substances and in this case, the companies may need to bare part of the cost passed down to them.

D.1.2.2 Energy costs

The chemical industry is one of the energy intensive industries. The share of energy in production costs usually accounts for around 30% of basic chemical production and is the main attributor to utility costs in the production of all other chemicals. The energy sector in the NMS is still under privatisation and liberalisation, particularly in its transitional process towards the energy market of the Union. The increase of energy tariffs results directly in increased production cost.

D.1.2.3 Labour costs

Low labour costs has favoured the chemical industry in NMS in comparison to the rest of the EU, especially in sections that are relatively labour intensive, e.g. in the production of fertiliser and synthetic rubber. Data presented previously show that in all chemical sector in NSM, the share of personnel costs in value added was some 10-35% less than that of EU15 (except for the production of paint and vanishes). Since 2000, personnel costs have been increasing much faster than the value added in most of the sections, meanwhile the productivity was also increasing though not as fast. This situation is expected to continue, which will result in increased production costs and will present an additional challenge to the competitiveness of some of the chemical products mentioned.

D.1.2.4 Market and trade

As discussed, the total export of the chemicals from NMS has been increasing, however more slowly than the increase of the total import and its absolute quantity (about EUR 12.000 million in 2003) was very little compared to that of EU15, which was EUR 157.000 million (CEFIC, 2005). Overall, although the NMS is in equilibrium in the non-EU trade of chemicals, its market share is fairly small. While accounting for the largest share in global chemical output, EU15, even more so in the case of the US, is being overshadowed by the fast growth of Asia (excluding Japan). Thus, while NMS as a whole is deteriorating in its trade performance with EU15, it has to find its market niche facing the challenges of growing competition from Asian companies in terms of both investment capital and market.

Under REACH several possible impacts in this respect are considered important. First, as discussed in previous chapter, the major trading partner of chemicals in NMS are EU15 countries, and its share in the market of specialty chemicals is rather small, therefore the impact of REACH is expected to be relatively smaller than that in EU15. However, since many producers of the non-basic chemicals in NMS usually do not have the scale of production and a relatively secure market position as is the case of their counterparts in EU15, they could face more difficulties. Secondly, countries with production oriented to non-EU markets, such as Slovenia and Lithuania, may loose competitiveness and market shares to competitors not affected by REACH, if they have to increase prices to absorb the costs induced by REACH.

D.1.2.5 Sector reform

Sector privatisation is well underway, but it is still not completed. While for all NMS more than 95% of the companies are privately owned mostly in the form of joint stock companies, especially in Poland and Czech Republic, some of the largest companies are still under the process of privatisation,. This generates some uncertainty to the chemical industry as a whole in terms of, among others, capital investment, product profile, as well as employment.

Data and information from the Czech Republic, Hungary and Slovenia indicate that the numerous SMEs in the rubber and plastic industry have a wide range of products with profitable niche markets, though these are small in production quantities. These companies generally use thousands of chemicals and have close cooperation with their customers to modify and develop their products to specific requirements. Under REACH, these SMEs would need to communicate information on the use of the chemicals and may need to register some of the substances used under certain criteria. Some SMEs may have difficulties to find additional resources to implement REACH. As the niche market is small and competition is generally high, the formation of consortia may not be easily achieved.

Integration along the value chain is particularly important with respect to application development, technical service, including branding and IT support, and delivery time and cost. Since, in general, it was not a common practice under the previous market structure, thus is a relatively new area for most NMS who typically lack of commercial management infrastructure. Moreover, it is particularly challenging to the majority of SMEs in the NMS who do not have the scale of business to offer the level of service required in an increasingly competitive environment.

D.2 Specialty chemicals

It is considered rational to assume that substances of low price, or low volume or, all the more, a combination of the two expose both the substance and its or preparation to a stronger risk that the investment in its registration as imposed by REACH will not pay within a reasonable pay-back period. One of the possible consequences is that such vulnerable substances or preparations may phase out and therefore have negative effects on their manufacturers as well as users. According to the chemical industry, such negative effects are most likely to be discovered in the group of specialty chemicals. However, as revealed in the following discussion the definition of "specialty chemicals" is not universally established. The detailed investigation of the coverage specialty chemicals is beyond the scoop of this study. However for the analysis of this sub-sector and the selected of case studies, it is necessary to discuss and clarify the meaning of specialty chemicals in this study based on the definition of CEFIC and NACE category.

The term of specialty chemicals (substances or preparations) is commonly defined in distinction of basic chemicals in both volume and function. According to CEFIC, the European Chemical Industry Council, 'specialty chemicals' are manufactured in lower volumes than basic chemicals and are used for specific purpose such as functional ingredient or as processing aids in the manufacture if a diverse range of products. Data shows that specialty chemicals represent nearly one forth of the value of the total EU-15 chemical industry production (see *Table D1*).

Table D.1: Production of the European chemical industry (EU-15) in 2002 (CEFIC 2004)

	Production (billion EUR)	**Share (%)**
Commodities	255	71
Fine chemicals	23	6
Specialties	82	23
Total	**360**	**100**

Specialty chemicals are in widespread use in the entire manufacturing, construction and oil industry, in utilities, all kinds of crafts and they may be contained in end products. As shown in Table D 2, pigments, dyes, fillers, imaging chemicals, water and paper chemicals, surface specialty chemicals as well as surfactants are among the most important specialty chemicals. Although low volume in production is considered as a common feature of the speciality chemicals, this list indicates that some of them can be in fact large volume chemicals.

Table D.2 Production of specialty chemicals in the EU-15 in 2002(CEFIC 2004)

	Production (billion EUR)	**Share (%)**
Pigments, dyes, fillers	11.0	13.4
Imaging chemicals	10.0	12.2
Water and paper chemicals	8.0	9.8
Surface specialty chemicals	7.0	8.5
Oleochemicals and surfactants	6.0	7.3
Flavour and fragrances	4.2	5.1
Adhesives and sealants	4.0	4.9
Nutrition chemicals	4.0	4.9
Catalysts	3.5	4.3
Plastics and rubber additives	3.5	4.3
Cosmetic chemicals	3.0	3.7
Electronic chemicals	2.5	3.0
Textile chemicals	2.0	2.4
Others	13.3	16.2
Total	**82.0**	**100.0**

As their purpose being specific, specialties enable customers to reduce overall system costs, enhance product performance and optimise manufacturing processing through custom solutions. That is to say they are sold for what they do, rather than for what they contain. Basically, specialty chemical companies sell solutions to problems. A feature distinguishing specialties from basic chemicals is their large customer servicing or technical servicing component Therefore, it is argued that specialty chemical prices tend to be set by value-in-use, not by cost, and historically their earnings have not been impacted as much by demand pressures. In general, specialty chemicals represent a small portion of a customer's total cost but are essential to enhancing productivity or performance. … This raises switching costs and offsets the bargaining power of customers. … Traditionally, specialties have higher profit margins (and returns on equity) than basic industrial chemicals and a much lower degree of cyclicality. Earnings have been less volatile. (CEFIC 2004).

These characteristics of specialty chemicals have important implications for the relevance of registration costs imposed by REACH. On the one hand, the relatively high profit margin may allow the manufacturers or importers to bear at least part of the registration cost without a direct need to increase prices. On the other hand, the value-in-use character of these chemicals would make it easier to increase price.

Another fact relevant in the context of REACH is the large number of speciality chemicals and, correspondingly, their respectively low production volumes. RPA has collected information on the structure of the production volumes in the specialty chemicals sector (see Table D3). This estimate indicates that registration cost per tonne of specialty chemical substances could be much higher than that of basic chemical substances.

Table D.3 Number and production volume range of selected chemical specialities (Source: RPA)

Specialty	**Number of substances**	**Volume range (t/a)**
Adhesives and sealants	> 5.000	1 – 100
Specialties coating	> 10.000	1 – 100
Dyes and pigments	2.500	unknown
Electronic chemicals	2.000	low
Leather	100 – 1.000	predominantly 1 – 100
Photographic	1.750	< 10
Biocides	900	1 – 100
Flavour and fragrances	> 3.000	< 50
Paper chemicals	2.300	1 – 1.000

In order to illustrate when production of a substance is in danger of being economically unattractive to the manufacturer due to the registration costs of REACH, *Table D.4* summarizes an estimation of the lower price limit of a substance in relation to different production volumes, in other words, below the limit price, the net present value (NPV) calculated according to the methdology is negative, i.e. the production of a substance would be no longer profitable. The NPV calculation is based on the average scenario of JRC/IHCP testing costs, and the assumption of a profit margin of 8%, a discount rate of 10% and a payback time of 5 years.

Table D.4 Minimum substance price for a profitable investment in registration under REACH

Production volume (t/a)	Lower price limit (EUR/kg)
1	43.70
10	27.00
100	7.20
1,000	0.90
10,000	0.09

Note: Production volumes are examples of actual quantities and do not relate to REACH-related tonnage bands.

According to CEFIC, the EU-15 specialty chemicals sector is made up of more than 10,000 companies, of which the large majority employ less than 250 persons and are thus by definition SMEs. This could be considered as an additional concern and reason for having a closer look at the specialty chemical sector insofar as the implementation of REACH is assumed to be more difficult for smaller companies.

However it should be kept in mind that the specialty sub-sector is extremely heterogeneous. The range of manufacturers includes very small companies with 5 employees as well as corporate groups with 10.000 employees and more. In most cases, companies have a mixed product portfolio, which also covers other than specialty chemicals. Even mixed functions of substance supplier and preparation maker within a single company were told to be quite common (GZS 2004).

In this study, overviews of the specialty chemicals are presented for three NMS, the Czech Republic, Estonia and Poland. However, little information and data collected can be analysed directly using the categorisation of CEFIC as discussed above. The official national and/or EU statistics available are usually based on the NACE classification system as shown in Table D5**,** i.e. chemical industry covering NACE 24 and 25. In this study, as a solution to the lack of data and information, the sub-sector of the specialty chemicals is analysed using the NACE system meanwhile keeping as close as possible to the CEFIC definition as discussed below.

Table D.5: NACE classification of activities in the chemical industry

24	**Manufacture of chemicals and chemical products**
24.1	**Manufacture of basic chemicals**
24.11	Manufacture of industrial gases
24.12	Manufacture of dyes and pigments
24.13	Manufacture of other inorganic basic chemicals
24.14	Manufacture of other organic basic chemicals
24.15	Manufacture of fertilizers and nitrogen compounds
24.16	Manufacture of plastics in primary forms
24.17	Manufacture of synthetic rubber in primary forms
24.2	**Manufacture of pesticides and other agro-chemical products**
24.3	**Manufacture of paints, varnishes and similar coatings, printing ink and mastics**
24.4	**Manufacture of pharmaceuticals, medicinal chemicals and botanical products**
24.41	Manufacture of basic pharmaceutical products
24.42	Manufacture of pharmaceutical preparations
24.5	**Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations**
24.51	Manufacture of soap and detergents, cleaning and polishing preparations
24.52	Manufacture of perfumes and toilet preparations
24.6	**Manufacture of other chemical products**
24.61	Manufacture of explosives
24.62	Manufacture of glues and gelatines
24.63	Manufacture of essential oils
24.64	Manufacture of photographic chemical material
24.65	Manufacture of prepared unrecorded media
24.66	Manufacture of other chemical products n.e.c.
24.7	**Manufacture of man-made fibres**
25	**Manufacture of rubber and plastic products**
25.1	**Manufacture of rubber products**
25.2	**Manufacture of plastic products**

Comparing NACE and CEFIC categorisation,, it would basically be desirable to specifically select figures from 4-digit NACE categories such as 24.12 (dyes and pigments), 24.52 (perfumes and toilet preparations), 24.64 (photographic chemicals) and so on. However, statistical data of this kind were not available. At 3-digit level, NACE figures are also not always available; but they provided a sufficient statistical basis for the comparative analysis undertaken for the three countries. However, such compromise may not provide an accurate picture of the specialty chemicals. Accordingly, owing to their general nature, NACE categories 24.1 (basic chemicals) and 24.7 (man-made fibres) were assumed not to contain specialty chemicals. Pharmaceuticals, medicinal chemicals and botanical products (NACE 24.4) and, to some extent, pesticides and agro-chemicals (NACE 24.2) could be assigned to specialty chemicals in principle, but will not be considered as such here, because they do not fall under the REACH regulation. Eventually, this leaves NACE categories 24.3, 24.5 and 24.6 being summarised as the basis of the analysis of the specialty chemicals in this study.

D.2.1 Czech Republic

D.2.1.1 The Czech chemical industry – an overview

In the Czech Republic, the manufacturing sector contributed a value added of EUR 18,100 million, or 23%, to the country's GDP of EUR 78,400 million generated in 2002 (EUROSTAT). According to the definition of the Czech Chemical Industry Association, chemical industry in the broader sense includes chemicals and pharmaceuticals (NACE 24), rubber and plastics processing (NACE 25) and coke manufacture and crude oil refinery (NACE 23). In 2002, these three categories made up 6, 6 and less than half percent, respectively, to the value added of the manufacturing sector. In total, they contributed to 12%, or EUR2,100 million (CZK 63,000 million)[2],. At the same time, the contributions of those three sectors to the turnover of the manufacturing sector were around 5, 6 and 2 % respectively, and equalled to a total of EUR 8,900 million or CZK 272,000 million. Accordingly, the chemical products (NACE 24) contributed 2% (EUR3,800 million) to the turnover and a same 2% (EUR 1,000 million) to the GDP of the whole Czech economy (CMIT 2004).

Over time, the turnover of the chemical industry (in constant 1995 prices) increased from less than EUR 2,000 million in 1992 to about EUR 3,200 million in 2000, which corresponds to an average annual increase by 6 %. Since 2000 the turnover of chemical products (NACE 24) rubber and plastics (NACE 25) has been increasing very slowly, while that of rubber of plastic products continued its trends. Relative to the development of the entire manufacturing sector, these figures are less pronounced, as turnover of manufacturing has increased at a similar rate until 2000, however at a faster pace in the time period thereafter. Accordingly, the chemical industry maintained a more or less constant share (of turnover) of slightly more than 6% of total manufacturing until 2000, but lost ground since then, yielding a share of slightly less than 5% in 2003.[3] Conversely, the number of employees in the chemical industry decreased from about 49,000 in 1997 to less than 44,000 in 2000 and remained constant thereafter.[4] This divergence in the development of turnover and employment in the Czech chemical industry is best explained in terms of a substitution of capital-intense automatic production devices for human workforce with a concomitant increase in labour productivity.

Slightly more than 800 companies constitute the sub-sector chemicals products (NACE 24) – a figure that increased sharply in the period of ongoing privatisation and came to a halt in 2000.

[2] During the last decade, the exchange rate of the Czech currency fluctuated around an average CZK 30 per EUR. In order to facilitate the comparability between the Czech, Polish and Estonian parts of the report, CZK figures are generally recalculated into EUR according to this exchange rate.

[3] Czech Republic Statistical Office

[4] This corresponds to 0.8 percent of the Czech workforce (CMIT 2003).

The gross profit margin is given with 4.4 % of the turnover. No figures are available for R&D expenditures.

D.2.1.2 Overview of the Czech specialty chemicals

The number of useful sources for this exercise is limited. Most of the information was drawn from two sources: annual reports of the Association of Chemical Industry of the Czech Republic (SCHP) and of the Czech Ministry of Industry and Trade (CMIT 2004; 2004).[5] None of these sources, however, explicitly specifies the specialty chemical sector. Therefore, as discussed in the previous section, specification of data is made according to the NACE system. *Table D.6* gives a first hint how the total turnover of EUR 7,900 million of the chemical industry, including NACE 23, and its 94,000 employees are distributed among the different NACE categories.

Table D.6 Share of the sub-sectors of the chemical industry's turnover and employment in 2003

NACE category	Subsector	Turnover (%)	Employees (%)
23	**Crude oil processing**	**19.4**	**3.0**
24	**Chemicals and pharmaceuticals**	**37.3**	**37.5**
24.1	Basic chemicals	22.2	17.1
24.2	Pesticides and other agro-chemical products	0.4	0.7
24.3	Paints, varnishes, printing ink and mastics	1.9	2.2
24.4	Pharmaceuticals, chemicals and botanical products	5.9	6.5
24.5	Soap & detergents, cleaning and polishing preparations, cosmetic products	2.5	3.8
24.6	Other chemical products	4.2[1]	7.3[1]
24.7	Man-made fibres		
25	**Rubber and plastics processing (NACE 25)**	**43.3**	**59.5**
25.1	Rubber products (NACE 251)	19.1	17.9
25.2	Plastic products (NACE 252)	24.2	41.6
	Total	**100**	**100**

Source: SCHP (2003) and CMIT (2004)
[1] Figures for NACE 24.6 and 24.7 are not distinguished

None of our information sources provides specific information about both NACE categories 24.6 and 24.7. In order to nevertheless make use of the provided data, we made the following assumptions:

- After privatisation and restructuring of the Czech chemical industry, the production of man-made fibres does not play a significant role anymore in the Czech Republic (SCHP 2004). EUROSTAT data show that turnover and value added of NACE 24.7 are one forth and less than one fifth, respectively, of the combined NACE 24.6 and 24.7 data. Accordingly, we can use the aggregate of NACE 24.6 and 24.7 as a good approximation for NACE 24.6.

- Disaggregated data on production of dyes and pigments, 24.12 are not available.

- According to *Table D.6*, pesticides and agro-chemicals (NACE 24.2) play a role in the chemical sector, but its contribution in terms of turnover and employment are shown to be below 1 and 2 %, respectively. As a consequence, even the aggregate of NACE

[5] Additional information could be gathered in an interview with the Czech Chemical Industry Association (SCHP 2004)

categories 24.2, 24.3, 24.6 and 24.7 employed in SCHP (2003) can be used in combination with NACE 24.5 as an approximation for specialty chemicals.

D.2.1.3 Economic performance of the specialty chemical sector

In the following, a set of indicators is used to describe the performance and recent development of the specialty chemical sector as compared to the performance and development of the chemical industry as a whole.

Table D.7: Turnover (sales) of chemical products in constant prices in 2000 to 2003

(Million EUR)[1]	2000	2001	2002	2003[2]
NACE 24.1	2633.0	2538.4	2316.9	2496.8
NACE 24.2	30.9	31.6	37.1	42.5
NACE 24.3	140.8	148.6	162.2	191.8
NACE 24.4	482.8	529.8	657.8	651.1
NACE 24.5	381.8	405.8	483.2	265.3
NACE 24.6 + 24.7	327.7	348.5	387.4	462.9
NACE 24	**3997.1**	**4002.8**	**4044.6**	**4110.6**
Cumulative index	100.0	100.1	101.2	102.8
Specialty chemicals[3]	**850.4**	**902.9**	**1032.9**	**920.1**
Cumulative index	100.0	106.2	121.5	108.2

Source: CMIT (2004) and personal calculation
[1] recalculation from CZK with a rate of 30 CZK/EUR; [2] preliminary;
[3] NACE 24.3 + 24.5 + 24.6 (+ 24.7)

Table D.7 shows that, in terms of turnover, the specialty chemical sector grew significantly faster than the chemical sector in general. While, in the period from 2000 to 2003, the latter grew in average by less than 1 % annually, the average rate of increase for the former was almost 3 %. Taking into account that the turnover in NACE 24.5 was distorted by the fact that the main part of one of the biggest manufacturers of cleaning agents could not be included, the actual growth rate of the specialty chemical sector may in fact be even considerably higher. In accordance with this difference in growth between specialty and total chemicals, the relative share of specialty chemicals grew from 21 (2000) to nearly 26% in 2002 and then down to 22% in 2003.

Table D.8: Value added of the chemical industry in constant prices, 2000 to 2003

(Million EUR)[1]	2000	2001	2002	2003[2]
NACE 24.1	655.0	606.7	583.2	646.8
NACE 24.2	9.1	9.6	14.0	15.0
NACE 24.3	35.1	38.7	43.7	53.2
NACE 24.4	199.2	222.4	266.3	270.2
NACE 24.5	72.5	69.9	97.1	86.5
NACE 24.6 + 24.7	108.4	103.9	117.9	150.7
NACE 24	**1079.3**	**1051.2**	**1122.1**	**1222.3**
Cumulative index	100.0	97.4	104.0	113.2
Specialty chemicals[3]	**215.9**	**212.5**	**258.8**	**290,4**
Cumulative index	100.0	98.4	119.8	134.5

Source: CMIT (2004) and personal calculation
[1] recalculation from CZK with a rate of 30 CZK/EUR; [2] preliminary;
[3] NACE 24.3 + 24.5 + 24.6 (+ 24.7)

The development in the specialty chemicals sector looks even more favourable when the value added is considered. Similar to the turnover, the contribution of the specialty chemical sector to

the added value of the total chemical sector grew between 2000 and 2003 from 20 to 24 %. However, during this time period, the average growth rates of the specialty chemicals (more than 10%) were more pronounced than that of chemicals industry (4%), as shown in *Table D.8*)..

The share of employment in the specialty chemical sector of that in the total chemical sector was 30 % in 2000 and grew to more than 35 % in 2003 (see *Table D.9*). These shares are much higher as compared to turnover or added value and can be reasonably explained by the averagely lower production volumes of specific substances and preparations and by the lower degree of automation.

Table D.9: Number of employees in the period 2000 to 2003

(Employees)	2000	2001	2002	2003[1]
NACE 24.1	24,300	23,370	21,431	20,058
NACE 24.2	772	668	682	713
NACE 24.3	2,306	2,419	2,462	2,618
NACE 24.4	6,567	6,982	8,100	7,751
NACE 24.5	4,069	4,098	4,453	4,569
NACE 24.6 + 24.7	6,974	6,893	7,458	8,432
NACE 24	**44,988**	**44,430**	**44,586**	**44 141**
Cumulative index	100.0	98.8	99.1	98.1
Specialty chemicals[2]	**13,349**	**13,410**	**14,373**	**15,614**
Cumulative index	100.0	100.4	107.7	117.0

Source: CMIT (2004) and personal calculation
[1] preliminary; [2] NACE 24.3 + 24.5 + 24.6 (+ 24.7)

Another interesting fact is the less dynamic growth in employment (as compared to value added), showing an average annual increase by 5% in the specialty chemical sector and a contrary decrease by 0.6% in the total chemical sector. The generally lower rate of increase in employment as compared to value added in both chemical products (NACE 24) and specialty chemicals indicates that the productivity of labour have been increasing. And indeed, this rationalisation is confirmed in *Table D.10*.

Table D.10: Labour productivity from value added in constant prices, 2000 to 2003

(1000 EUR/employee)[1]	2000	2001	2002	2003[2]
NACE 24.1	27.0	26.0	27.2	32.2
NACE 24.2	11.8	14.4	20.5	21.0
NACE 24.3	15.2	16.0	17.8	20.3
NACE 24.4	30.3	31.8	32.9	34.9
NACE 24.5	17.8	17.1	21.8	18.9
NACE 24.6 + 24.7	15.5	15.1	15.8	17.9
NACE 24	**24.0**	**23.7**	**25.2**	**27.7**
Cumulative index	100.0	98.6	104.9	115.4
Specialty chemicals[3]	**16.2**	**15.9**	**18.0**	**18.6**
Cumulative index	100.0	98.0	111.3	115.0

Source: CMIT (2004) and personal calculation
[1] recalculation from CZK with a rate of 30 CZK/EUR; [2] preliminary;
[3] NACE 24.3 + 24.5 + 24.6 (+ 24.7)

Concluding the above results, the specialty chemicals sector was found to show an increase in turnover whereas the chemical industry in general is facing a standstill. The increase in value added for specialty chemicals is even stronger, justifying an increase in employment which is again not the case for the chemical industry as a whole. This implies that at least on the domestic market, the competitiveness of the specialty chemicals is considerably stronger than that of the chemical industry as whole.

D.2.1.4 Foreign trade

It was shown in the overview over the economic situation of the 10 new member states that the Czech Republic, like all new member states, shows a large deficit in foreign trade and that the major part of this deficit is due to the chemical industry and its products. As shown in *Table D.11*, 65% of the chemical industry's sales go into export, whereas chemical products worth 135% of these sales are imported.

Table D.11: Development in foreign trade in chemical products (in current prices), 2000-2003

Total exports (Million EUR)[1]				
CPA[2]	2000	2001	2002	2003
CPA 24.1	1479.3	1419.6	1166.5	1306.6
CPA 24.2	18.9	18.4	17.3	23.5
CPA 24.3	87.3	77.2	66.6	68.3
CPA 24.4	322.9	373.3	328.0	364.6
CPA 24.5	325.6	348.9	435.1	426.4
CPA 24.6	133.1	189.4	156.4	174.1
CPA 24.7	100.6	106.0	86.4	91.9
CPA 24	**2467.6**	**2532.7**	**2256.3**	**2455.4**
Cumulative index	100.0	102.6	91.4	99.5
Included EU	1178.8	1176.8	992.6	1148.2
Cumulative index	100.0	99.8	84.1	97.3
Specialty chemicals[3]	**545.9**	**615.5**	**658.1**	**668.8**
Cumulated index	100.0	112.7	120.6	122.5
Total imports (Million EUR)[1]				
CPA[2]	2000	2001	2002	2003
CPA 24.1	1709.8	1854.4	1736.8	1906.8
CPA 24.2	116.3	146.4	146.0	138.3
CPA 24.3	344.9	353.6	342.2	361.7
CPA 24.4	1002.0	1167.0	1199.5	1407.3
CPA 24.5	349.1	359.0	362.7	399.0
CPA 24.6	551.0	569.6	567.7	609.5
CPA 24.7	304.6	296.8	260.8	269.0
CPA 24	**4377.7**	**4746.7**	**4615.8**	**5091.5**
Cumulative index	100.0	108.4	105.4	116.2
Included EU	2909.2	3156.6	3131.4	3471.3
Cumulative index	100.0	108.5	107.6	119.4
Specialty chemicals[3]	**1245.0**	**1282.2**	**1272.6**	**1370.2**
Cumulative index	100.0	103.0	102.2	110.1
Net balance (Million EUR)[1]				
CPA[2]	2000	2001	2002	2003
CPA 24.1	-230.5	-434.7	-570.3	-600.2
CPA 24.2	-97.3	-128.1	-128.7	-114.9
CPA 24.3	-257.6	-276.4	-275.6	-293.4
CPA 24.4	-679.2	-793.7	-871.6	-1042.7

CPA 24.5	-23.5	-10.1	5.8	27.4
CPA 24.6	-418.0	-380.2	-411.4	-435.3
CPA 24.7	-204.0	-190.8	-174.4	-177.1
CPA 24	**-1910.1**	**-2214.0**	**-2359.4**	**-2636.1**
included EU	-1730.4	-1979.7	-2138.8	-2323.1
Speciality chemicals[3]	**-699.1**	**-666.7**	**-681.2**	**-701.3**

Source: CMIT (2004) and personal calculation
[1] recalculation from CZK with a rate of 30 CZK/EUR;
[2] CPA is the consumer counterpart of NACE; [3] CPA 24.3 + 24.5 + 24.6

The deficit grew by more than 10% annually during the past four years. Specialty chemicals contribute proportionally to the export and import of the products of chemical industry in general. In 2003, for instance, specialty chemicals made up 27% of both export and import of all chemical products. This percentage is only slightly higher than the contribution of specialty chemicals to turnover (22%) and value added (24%). This implies that the growth of the deficit is, to a large extend, due to the import of bulk chemicals and pharmaceuticals.

While the trade deficit for specialty chemicals remained almost constant since 2000, it is worthwhile to have a closer, separate, look at the export and import figures. It is evident that both increased over time; but in order to keep the deficit constant, the export had to grow faster as it started from a lower basis. In fact, it can be derived from *Table D.11* that exports of specialty chemicals grew by more than 7 % annually in average, whereas imports increased by only little more than 3 %. This is again an indication of the competitiveness of the Czech specialty chemical sector.

It is then worth to exam that why the Czech chemical industry is competitive in producing specialty chemicals but not bulk chemicals and pharmaceuticals? One explanation could be the availability of production factors. Specialty chemicals production is more labour intensive, relying more on skilled labour. By contrast, bulk chemicals production is capital intensive and pharmaceuticals rely on extensive RaD efforts – both requiring large amounts of financial capital. This seems to be reasonable considering that in the Czech Republic, the availability of skilled labour is generally high, while capital can be limited.

Regarding foreign trade, almost half of the total chemical exports go to EU-15, one third to CEFTA (Poland, Hungary, Slovakia, Slovenia, Romania, Bulgaria) and one fifth to the Rest of the world (RoW). With a share of more than two thirds, imports are more EU-oriented than export, whereas the share of the CEFTA states is rather small (see *Table D.12*). For specialty chemicals, the imports appear to be similarly EU oriented and even more for paints and varnishes. By contrast, the exports of specialty chemicals, especially soaps and detergents but also paints and varnishes, are more CEFTA-focussed. This implies that, with regard to the potential impact of REACH, exports of these sub-sectors to countries outside the EU-25 would most likely be more negatively affected. On the import side, sectors are affected insofar only as they rely on inputs from outside the EU-25 that may or may not be registered by their suppliers or importers. Due to the higher degree of vertical integration in the Czech chemical industry (DG Enterprise 2000), this does not seem to be an issue for the specialty chemical sector.

Table D.12: Exports and imports of chemicals by main territories and groups of products in 2003

Products of aggregation/sector	**Shares of territories (%) in**					
	exports			**imports**		
	EU	**CEFTA**	**RoW**	**EU**	**CEFTA**	**RoW**
Chemicals and pharmaceuticals	**46.7**	**32.8**	**20.5**	**68.2**	**13.0**	**18.8**
Basic chemicals	58.5	25.8	15.6	65.7	15.2	19.1
Paints and varnishes	34.0	55.5	10.5	90.0	4.8	5.2

Products of aggregation/sector	Shares of territories (%) in					
	exports			imports		
	EU	CEFTA	RoW	EU	CEFTA	RoW
Pharmaceuticals	34.3	34.1	31.6	65.1	12.1	22.8
Cosmetics, soap & detergents	15.5	55.8	28.7	67.0	25.9	7.1
Chemical fibres	78.3	17.0	4.7	50.9	20.9	28.2
Other	49.8	26.5	23.7	76.5	3.9	19.6

Source: SCHP (2003) and personal calculation

D.2.1.5 Conclusions from statistical data analysis

Taking all the arguments together, the specialty chemical sector of the Czech Republic seems to be in a relative good position. While the Czech chemical industry stagnated in the last few years, the specialty chemical sector was able to expand. Also productivity increased steadily. More importantly, however, the specialty chemical sector could maintain its competitive position also on the international level. Competitive disadvantages arising from exports in non-EU countries (without the need to comply with REACH) exist and are similar to those of the entire chemical industry. They will affect only some products and some companies, but more detailed information on this issue can only be provided in the case studies.

D.2.2 Poland

D.2.2.1 The Polish chemical industry – an overview

In Poland, the manufacturing sector contributed a value added of EUR 38.700 million, or 19%, to the country's GDP of EUR 202.500 million generated in 2002. This is similar to the corresponding figure (23%) in the Czech Republic. According to the understanding of the Polish Chamber of Chemical Industry (PIPC), chemical industry in a broader sense includes chemicals and pharmaceuticals (NACE 24) and rubber and plastics processing (NACE 25). In 2002, these two categories made up 7 and 5%, respectively, yielding a total contribution of 11%, or EUR 4.400 million (i.e. PLN 19.000 million)[6], to the value added of the manufacturing sector. At the same time, the contributions of those two sectors to the turnover of the manufacturing sector were 7 and 5% yielding a total of EUR 14.700 million (PLN 65.000 million).In 2003 is the gross profitability of the chemical industry and the rubber and plastics sector with 6 and 7% significantly higher than those 4% of industry as a whole (PIPC 2004a).

Over time, the turnover of the chemical industry increased from EUR 2.000 million in 1992 to almost EUR 8.000 million in 2001 (NACE 24, CEFIC 2005), which corresponds to an average annual increase of 25% before 1995, of 10% from 1995 to 2001 and only slight increase (of 1% p.a.) since then. Looking into the development of the entire manufacturing sector, the increase appears to be at a similar rate, that is, about 11% annually from 1995 to 2001 and between 1 and 2% thereafter. Accordingly, the chemical industry (NACE24) only slightly lost its ground with its share declining from 8% in 1995 to less than 7% in 2002 (EUROSTAT 2005). It is also noted that such share has become significantly lower than the average of EU25, which was relatively stable at 10% since the end of 90s. Among the three countries of this study, EUROSTAT data shows that in Czech Republic and Estonia, the share of chemical industry has declined to even lower, around 5%, than in Poland.

Conversely, the number of employees in the chemical industry decreased from about 140.000 in 1995 to less than 100.000 in 2002 and thereafter. The trend of clearly declining in employment at more than 5 % annually and strong increasing in turnover indicates that the substitution of human workforce, mostly likely accompanied by increased capital-intense automatic

[6] In the 1990s, the exchange rate between the Polish Sloty (PLN) and EUR was characterized by a constant significant devaluation of the former. In 1999, this development was interrupted; since then, the PLN fluctuated around its current rate of about 4.4 PLN per EUR.

production, has been in progress resulting in the evidently improved labour productivity. Since 2002, however, this development seems to have slowed down remarkably.

D.2.2.2 Identification of the specialty chemical sector in Poland

With less information available than the Czech Republic, the overview of the specialty chemical sector in Poland is based on a very limited number of sources. Most of our information was drawn from the website and the annual reports of the Association of the Polish Chamber of Chemical Industry (PIPC) and from the Polish government as presented by EUROSTAT.[7] None of these sources explicitly specifies the specialty chemical sector. Therefore as discussed,, specification and analysis of data are done according to the NACE system.
Table D.13 gives a first hint how the total value added of EUR2.040 million of the chemical industry (NACE 24), its 2241 companies and approximately 120.000 employees are distributed among the different NACE categories. Values for NACE category 25 are given for comparison. The last year explicitly specifying at least the majority of relevant NACE categories is 1999.

Table D.13 Share of the sub-sectors of the chemical industry's turnover, companies and employment in Poland in 1999

NACE category	Subsector	Value added (Mio. EUR)	Number of firms	Employees (1000)[1]
24	**Chemicals and pharmaceuticals**	**2041.3**	**2241**	**125.1**
24.1	Basic chemicals	707.7	530	45.5
24.2	Pesticides and other agro-chemical products	(~40)[2]	n/a	n/a
24.3	Paints, varnishes, printing ink and mastics	134.6	352	7.9
24.4	Pharmaceuticals, chemicals and botanical products	440.3	208	26.0
24.5	Soap & detergents, cleaning and polishing preparations, cosmetic products	439.9	743	24.6
24.6	Other chemical products	(~200)[2]	n/a	n/a
24.7	Man-made fibres	(~80)[2]	n/a	n/a
25	**Rubber and plastics processing (NACE 25)**	**1370.3**	**9723**	**107.8**

Source: PIPC (2003) and EUROSTAT (2005)
[1] Figures for employees are from 1998; [2] Estimates

Evidently, data are rather fragmentary. With regard to the specialty chemical sector, only NACE categories 24.3 and 24.5 are specified. Their combined shares of the total chemical sector (NACE 24) are 28 (value added), 49 (number of firms)8 and 26 % (employees). For comparison, the corresponding values for the Czech Republic in 2002 were 15 (value added) and 16 % (employees). If rough estimates for turnover in NACE categories 24.2, 24.6 and 24.7 are included in the calculation, the specialty chemical sector specified as the combination of NACE categories 24.3, 24.5 and 24.6 contributes 38 % to the total turnover of the chemical industry, compared with 24 % in the Czech Republic. Another source of data shown in *Table D.14*, provided in an interview with the PIPC (2004b), show that the share of the three categories is 30%. In any case, it appears that the relative importance of the specialty chemical sector as specified here is significantly higher in Poland than in the Czech Republic.
Table D.14 Structure of the Polish chemical industry

NACE	Sector	Share of production value

[7] Additional information could be gathered in an interview with the Polish Chamber of Chemical Industry (PIPC 2004b)

[8] The large relative number of firms indicates that firms in the speciality sector are in average smaller than those in the entire chemical industry. Due to the large diversity and lower tonnage of specialty chemical, this effect is not surprising.

		(%)
24.1	Basic materials	49.2
24.2	Pesticides and other agro-chemical products	1.2
24.3	Paints, varnishes and similar coatings, printing ink and mastics	7.1
24.4	Pharmaceutical, medicinal chemicals and botanical products	17.1
24.5	Soaps and detergents, cleaning and polishing preparations, Perfumes and toilet preparations	16.6
24.6	Other chemical products (predominantly specialties)	6.3
24.7	Man-made fibres	2.4
24	**Total**	**100**

Source: PIPC (2004b)

On the other hand, the preponderance in the number of employees (26 % as compared to 16 % the Czech Republic) is similar to that of turnover or value added (24.6 as compared to 14.5 %), the productivity of labour in the specialty chemical sector in Poland seem to resemble that in the Czech Republic.

D.2.2.3 Economic performance of the specialty chemical sector

Like in the previous case study, a set of indicators is used to describe the performance and recent development of the specialty chemical sector in Poland as compared to the performance and development of the chemical industry as a whole.

Table D.15: Turnover (sales) of chemical products in Poland, 1998 to 2002

(Million EUR)	1998	1999	2000	2001	2002
NACE 24.1	2561.1	2400.1	3093.2	3223.1	3025.8
NACE 24.2	n/a	n/a	n/a	n/a	n/a
NACE 24.3	503.9	530.0	(530)[1]	(530)[1]	528.6
NACE 24.4	1068.1	1092.2	1303.3	1653.0	1889.9
NACE 24.5	1831.3	2050.9	2246.2	2723.1	3002.4
NACE 24.6 + 24.7	n/a	n/a	n/a	n/a	n/a
NACE 24	**6738.0**	**6816.3**	**8131.5**	**n/a**	**8424.1**
Cumulative index	100.0	101.2	120.7	n/a	125.0
Specialty chemicals[2]	**2335.2**	**2580.9**	**2776.2**	**3253.1**	**3531.0**
Cumulative index	100.0	110.5	118.9	139.3	151.2

Source: EUROSTAT (2005), PIPC (2003) and personal calculation
[1] Estimates; [2] NACE 24.3 + 24.5

Table D.15 shows that in the period from 1998 to 2002, the relative share of specialty chemicals in terms of turnover grew from 35 to 42%. The development in the specialty chemicals sector looks also favourable when the value added is considered. *Table D.16* shows that the contribution of the specialty chemical sector to the value added of the total chemical sector grew from 29% in 1998 to about 37% in 2002.The difference in growth rate between specialty and total chemicals is reported to be significant in both turnover and value added. Over the same time period, the turnover of specialty chemicals grew at an average of 11%, nearly twice as much as the Polish chemical industry, and the same trend can be observed by looking at the growth rate of the value added. Therefore, the specialty chemical sector grew significantly faster than the chemical sector. It can also be noted that a more significant position of the specialty chemical sector in Poland as compared to the Czech Republic is confirmed not only in static, but also dynamic terms.

Table D.16: Value added of the Polish chemical industry, 1998 to 2002

(Million EUR)	1998	1999	2000	2001	2002
NACE 24.1	705.7	707.7	900.8	1130.0	770.9

NACE 24.2	n/a	n/a	n/a	n/a	n/a
NACE 24.3	114.4	134.6	161.5	n/a	(200)[1]
NACE 24.4	440.3	481.1	566.9	1036.0	840.7
NACE 24.5	439.9	513.4	625.2	1399.6	765.1
NACE 24.6 + 24.7	n/a	n/a	n/a	n/a	n/a
NACE 24	**1936.5**	**2041.3**	**2491.6**	**n/a**	**(2600)[1]**
Cumulative index	100.0	105.4	128.6	n/a	(134.2)[1]
Specialty chemicals[2]	**554.3**	**648.0**	**786.7**	**n/a**	**(965.1)[1]**
Cumulative index	100.0	116.9	141.9	n/a	(174.1)[1]

Source: EUROSTAT (2005), PIPC (2004b) and personal calculation
[1] Estimate; [2] NACE 24.3 + 24.5

In some contrast to the latter figures, employment in the specialty chemical sector shows only a marginal increase, while the number of employees in the entire chemical industry decreased by an average of more than 6 % (see *Table D.17*). This corresponds to an increase in the specialty chemicals sector's employment share from 26% in 1998 to 34% in 2002. These percentages are in agreement with the share of value added and its increase, which implies that the relative changes in the productivity of labour in both specialty chemical sector and chemical industry are approximately the same. Moreover, the fact that average annual increases in value added (15 and 8% for specialty chemicals and chemical industry respectively) were significantly higher than those of employment (0.4 and -6.2 % respectively) indicating that the productivity of labour must have undergone a substantial increase. This is indeed shown in *Table D.18.* Remarkably, with an average of more than 14% annually, not only the increase in productivity in Poland is much higher than in the Czech Republic (with hardly 5 %); also the absolute productivity achieved in 2002 in Poland is 60 % higher in the specialty chemical sector and 6 % higher in the entire chemical industry (compare *Table D.10* and *Table D.18*).

Table D.17: Number of employees in the Polish chemical industry, 1998 to 2002

(1000 Employees)	1998	1999	2000	2001	2002
NACE 24.1	45.5	n/a	n/a	n/a	31.6
NACE 24.2	n/a	n/a	n/a	n/a	n/a
NACE 24.3	7.9	n/a	n/a	n/a	(8)[1]
NACE 24.4	25.9	n/a	n/a	n/a	25.8
NACE 24.5	24.6	n/a	n/a	n/a	25.1
NACE 24.6 + 24.7	n/a	n/a	n/a	n/a	n/a
NACE 24	**125.1**	**120**	**109**	**103**	**97,0**
Cumulative index	100.0	95.9	87.1	82.3	77.5
Specialty chemicals[2]	**32.5**	n/a	n/a	n/a	**33.1**
Cumulative index	100.0	n/a	n/a	n/a	101.8

Source: EUROSTAT (2005), CEFIC (2005) and personal calculation
[1] Estimate; [2] NACE 24.3 + 24.5

Table D.18: Productivity of the labour (value added per number of employees) in the Polish chemical industry, 1998 to 2002

(1000 EUR/employee)	1998	1999	2000	2001	2002
NACE 24	**15.5**	**17.0**	**22.9**	**n/a**	**26.8**
Cumulative index	100.0	109.7	147.7	n/a	172.9
Specialty chemicals[2]	**17.1**	**n/a**	**n/a**	**n/a**	**29.2**
Cumulative index	100.0	n/a	n/a	n/a	170.8

Source: personal calculation from *Table D.16* and *Table D.17*.

However, it should be noted that, unlike in the Czech Republic, the stronger increase of both specialty chemical and chemical industry in Poland cannot be interpreted as an indication for a catch-up reaction from a lower level. Instead, in 2002, the productivity in the Polish specialty chemical sector (29.2 kEUR/employee) had exceeded the productivity in the chemical industry in Poland (26.8 kEUR/employee) as well as in the Czech Republic (ca. 25.2 kEUR/employee). This increase in productivity as well as the expansion of the specialty chemicals sector in general implies that at least on the domestic market, the competitiveness of the specialty chemicals sector should be quite strong. It remains to be seen whether this finding is confirmed by, and can be extended to, foreign markets.

D.2.2.4 Foreign trade

Like the Czech Republic, Poland also shows a large deficit in foreign trade of which the major part is due to the chemical industry and its products. As shown in
Table D.19, 40 % of the chemical industry's sales go into export, whereas chemical products worth 88 % of these sales are imported. This yields a foreign trade performance of -0.37 for Poland, which is quite similar to the Czech figure of -0.35.[9]

Table D.19: Foreign trade in products from chemical industry in Poland (in current prices) in 2003

(Million EUR)	Export	Import	Trade balance	Export dynamics 2003/2002	Import dynamics 2003/2002
Inorganic chemicals	247.5	304.2	-56.7	127.1	121.4
Organic chemicals	496.1	973.2	-477.1	130.6	129.4
Fertilizers	273.8	160.2	113.6	178.6	105.2
Pharmaceuticals	189.2	2077.1	-1887.9	112.6	115.5
Pigments and dyes*	188.6	778.8	-590.2	131.0	126.1
Glues, enzymes*	69.6	241.2	-171.6	113.9	114.2
Soap detergents*	311.2	363.7	-52.5	138.0	118.3
Cosmetics*	508.6	504.5	4.1	143.1	121.5
Photo chemicals*	6.2	127.8	-121.6	131.9	118.0
Synthetic rubber	947.7	880.8	66.9	139.8	134.1
Other chemicals	160.0	965.1	-805.1	132.5	119.8
All chemicals	**3398.5**	**7376.6**	**-3978.1**	**133.9**	**119.9**
Specialty chemicals*	**1084.2**	**2016.0**	**-931.8**	**137.6**	**121.6**

Source: PIPC (2005), modified and personal calculation
* Specialty chemicals
[1] including paints and varnishes (supposed)

The deficit grew strongly by more than 15 % annually from 1995 to 2001 and more slowly only in recent years (CEFIC 2005). In 2003, the export and import of specialty chemicals contributed to 32 and 27% of that of all chemical products respectively, and the share of specialty chemicals in the total trade deficit of chemical products was 23%, which is significantly less than their contribution to turnover (42%) or value added (37%). From 2002 to 2003, both export and import of specialty chemicals showed a more dynamic increase than export and import of chemical products in general. However, the export grew much stronger than the import of specialty chemicals. This has resulted in the share of specialty chemicals in total trade deficit reduced to less than 10 % in 2002/2003. This can be seen as another indication for a relatively better competitiveness of the Polish specialty chemical sector.

[9] Trade performance = (export – import)/(export + import)

However, again the question arises: why is the Polish chemical industry rather competitive in producing specialty chemicals but not bulk chemicals and pharmaceuticals? Specialty chemicals are qualitatively more heterogeneous allowing for a wide variation of input factors. Since the manufacturing of specialty chemicals is more labour-intense, the less costly workforce in Poland allows for cheaper production than in economically more advanced countries, even with slight decreases in quality as less expensive alternatives for the market. By contrast, bulk chemicals are produced in highly automatic production devices which would be economically viable only when applied in sufficiently large scales. Moreover, due to a lower degree of vertical integration, Polish manufacturers of bulk chemicals often rely on input material supply by other firms – often from abroad. This renders production more costly than in countries with a higher degree of vertical integration (DG Enterprise 2000).[10]

Another important aspect is the partners involved in foreign trade. In the time period 1998 to 2002, more than half of the exports of the chemical industry go to EU-15 with increasing tendency, exports to CEFTA countries (Czech Republic, Hungary, Slovakia, Slovenia, Romania, Bulgaria) and the former Soviet Union declined from 40 to 20% and exports to other (developed) countries were in the order of 10%. With a share of almost three quarters, imports are even more EU-15-biased, whereas the shares of the CEFTA countries, the former Soviet Union, developing countries and the remaining (developed) countries are all in the range of between 5 and 10 % (see *Table D.20*).[11] Although specific data on foreign trade for specialty chemicals are lacking in the Polish case, it can be expected that, like in the Czech Republic, the exports of specialty chemicals are significantly more CEFTA-focussed, whereas on the import side, no major changes are expected because the bias in favour of the EU is already quite strong.

Table D.20: Exports and imports of chemicals by main territories in the period 1998 to 2002 (in %)

	1998	1999	2000	2001	2002
Export structure					
EU	50.3	54.3	55.3	52.6	69.0
CEFTA	11.6	13.6	13.9	14.2	8.7
Former SU	28.3	21.6	19.9	22.5	10.3
Developing countries	5.2	7.7	7.3	6.4	6.0
Other	4.6	2.9	3.6	4.3	6.0
Import structure					
EU	72.8	74.2	73.7	73.2	62.0
CEFTA	8.7	8.5	8.5	8.7	7.3
Former SU	2.8	3.0	3.4	4.0	10.0
Developing countries	6.0	4.7	5.2	4.9	12.3
Other	9.7	9.5	9.2	9.3	8.4

Source: PIPC (2004)

With regard to the potential impact of REACH, two effects may be foreseen. On the one hand, exports to countries outside the EU-25 (including part of the CEFTA countries), that is between one quarter and one third of the export volume, will most likely be negatively affected. For Poland, this share is significantly higher than for the Czech Republic (about 20 %). On the other hand, it is expected by several interview partners that REACH will render it more difficult to maintain imports of raw materials, on which Poland depends more heavily than the Czech Republic. It is not possible to be investigate in this study whether or not these substances would be registered by their importers, however, if they are to be registered,, it is believed that for reasons of administration and enforcement, it would be difficult for the importers to form

[10] In the Czech chemical industry, by contrast, the company Spolchemie is given as an example for a high degree of vertical integration in the production of resins and sufficiently large production facilities that allow for production at low costs (DG Enterprise 2000).

[11] For exports as well as imports it is unclear whether the sudden shifts in the year 2002 represent real changes in tendencies or are merely one-time outliers.

consortia with other EU manufacturers/importers and as well difficult to obtain information from suppliers outside the EU for self registration. Due to the lower degree of vertical integration in the Polish chemical industry, this problem also applies to the specialty chemical sector.

D.2.2.5 Conclusions from statistical data analysis

At first glance, the future perspectives of the Polish chemical industry (NACE 24) in general and the specialty chemical sector in particular seem to be in healthy development even though it has been slight slower than the manufacturing industry as whole. With regard to the less pronounced period of stagnation in the near past and the higher growth rates together with an equally high productivity, the situation looks even slightly better than in the Czech Republic. However, there are also some drawbacks especially with regard to the implementation of REACH. The stronger reliance of the Polish (specialty) chemical sector on raw material imports from outside the EU increases the risk of non-availability of these substances after the implementation of REACH. Moreover, the lower degree of vertical integration and the organisational structures between chemical companies in Poland do not facilitate the implementation of REACH. Certain measures of restructuring in terms of foreign trade as well as information flow could well lead to an improvement.

D.2.3 Estonia

D.2.3.1 The Estonian chemical industry – an overview

With 1.4 million inhabitants, Estonia has got little more than one thirtieth of the population of Poland. Accordingly, its economic power is reflected in a GDP of just EUR 7,500 million in 2002, to which the manufacturing sector contributed a value added of EUR 1,140 million or 15%. This share is lower than in Poland (19%) and much lower than in the Czech Republic (23%), indicating a significantly lower degree of the significance of industry in Estonian economy. In the same period, the manufacturing of chemicals and pharmaceuticals (NACE 24) and the processing of rubber and plastics (NACE 25) contributed 4 and 3% respectively, yielding a total of EUR 82 million, to the value added of the manufacturing sector. At the same time, the contributions of these two sectors to the turnover of the total manufacturing sector were 5 and 3.5% respectively, yielding a total EUR 368 million. Accordingly, the chemicals and pharmaceuticals products gave rise to a turnover of about EUR 212,000 million and contributed 0.6% or EUR44 million to the GDP of the whole Estonian economy (EUROSTAT 2005) – significantly less than that in the case of Poland (1.3%) and the Czech Republic (2.1%).

Unlike the rubber and plastics processing sector which grew significantly by an average 22% per annum between 1996 and 2002, the manufacturing of chemicals and pharmaceuticals (with the exception of a slump in 1999/2000) experienced stagnation in the same period. Compared to the development of the entire manufacturing sector which grew by an annual average of 13% in this time period, the development of the chemical industry , as NACE 24, was characterised by a decline at the same rate (-13%). Even though the value added grew slowly during the same period (a yearly average of less than 2.5%), employment underwent a slight decrease of 4% annually (EUROSTAT 2005).

D.2.3.2 Identification of the specialty chemical sector in Estonia

As in the preceding country studies, neither the Statistical Office of Estonia nor EUROSTAT explicitly mention the specialty chemical sector. Instead, specification of data is again made according to the NACE system (EUROSTAT) or the NACE-equivalent CPA and the SITC

classification (Statistical Office of Estonia). *Table D.21* gives a first hint as to how the total value added of EUR44 million of the chemical industry (NACE 24), its 78 companies and roughly 3000 employees are distributed among the different NACE categories. Values for NACE category 25 are given for comparison.

Table D.21 Share of the sub-sectors of the chemical industry's turnover, companies and employment in Estonia in 2002

NACE category	Subsector	Value added (EUR million)	Number of firms	Employees
24	**Chemicals and pharmaceuticals**	**44.1**	**78**	**2942**
24.1	Basic chemicals	5.9	15	976
24.2	Pesticides and other agro-chemical products	n/a	2	n/a
24.3	Paints, varnishes, printing ink and mastics	19.7	13	529
24.4	Pharmaceuticals, chemicals and botanical products	n/a	14	n/a
24.5	Soap & detergents, cleaning and polishing preparations, cosmetic products	2.4	23	286
24.6	Other chemical products	10.3	11	858
24.7	Man-made fibres	0.0	0	0
25	**Rubber and plastics processing (NACE 25)**	**37.9**	**131**	**3384**

Source: EUROSTAT (2005)

With regard to the specialty chemical sector, all relevant NACE categories (i.e. 24.3, 24.5 and 24.6) are specified. In comparison with the chemical products (NACE 24), their combined shares are 73% (value added), 60% (number of firms) and 57% (employees). For comparison, with 22, 24 and 35 %, the respective figures for the Czech Republic were much lower. This discrepancy is even larger due to the lack of appropriately specified data in the Czech statistics, and the latter percentages additionally comprise NACE category 24.7.

Unlike the Czech Republic, a comparison with Poland can only be made on the basis of the combined shares of NACE categories 24.3 and 24.5. But also in this case, the share in value added of the specialty chemical sector in Estonia (50%) is much larger than in Poland (28%). By contrast, the specialty chemical sector's shares in the number of firm (49 vs. 46%) and employment (26 vs. 28%) were quite similar. So, it appears that, although the degree of industrialisation in Estonia as measured by the contribution of the manufacturing sector to the country's GDP is relatively low, the relative importance of the specialty chemical sector within the Estonian chemical industry is higher than in Poland and much higher than in the Czech Republic.

D.2.3.3 Economic performance of the specialty chemical sector

Also in the case of Estonia, turnover, value added and employment are considered as indicators for describing the performance and recent development of the specialty chemical sector compared to the chemical industry as a whole. Unfortunately, however, data about the temporal development of these performance indicators are very incomplete because, first, data on the 3-digit NACE sub-sector level were not collected at all prior to the year 2000 and, secondly, many

data were kept confidential. As a consequence, the data set of the year 2002 (shown in *Table D.21*) is the first and, so far, only one allowing for a comprehensive specification of the specialty chemical sector. Nevertheless, some conclusions can even be drawn from the poor existing data.

For instance, 3-digit NACE-specified firm numbers available for the complete period 2000 to 2003 (see *Table D.22*) indicate that, at least in terms of firm numbers, the share of (mainly) specialty chemical firms remained constantly on the high level described above.

Table D.22: The number of firms of chemical industry in Estonia, 2000 - 2003

(Million EUR)	2000	2001	2002	2003
NACE 24.1	15	15	15	22
NACE 24.2	1	1	2	15
NACE 24.3	16	15	13	17
NACE 24.4	15	15	14	13
NACE 24.5	16	14	23	22
NACE 24.6	15	9	11	31
NACE 24.7	0	0	0	0
NACE 24	**78**	**69**	**78**	**120**
Specialty chemicals[1]	**47**	**38**	**47**	**70**
Specialty chemicals/NACE 24	0.60	0.55	0.60	0.58

Source: EUROSTAT (2005), EKTL (2005)
[1] NACE 24.3 + 24.5 + 24.6

A more indirect indication for the persistent significance of the specialty chemical sector consists of the fact that the manufacturing of basic chemicals (NACE 24.1), the only sub-sector for which complete data from 2000 to 2002 are available, shows a slight decrease rather than increase in terms of turnover, value added and employment and, while representing one third of the employees and one fourth of the turnover of the chemical industry, does not go at the expense of the specialty chemical sector.

In order to assess the competitiveness of the Estonian specialty chemical sector in the international context, the productivity expressed as value added per full-time equivalent employee is again used as an indicator. As it is clearly evident from, the productivity in the Estonian specialty chemical sector (EUR 11,900 per employee) is not only considerably lower than in Poland (EUR 29,200) and the Czech Republic (EUR 18,000); it is also significantly lower than in the entire chemical industry (EUR 15,900). Unfortunately, on the basis of the data available, it is impossible to assess whether and how the specialty chemical sector may possibly develop from this rather low basis. In this rather negative productivity assessment, also one positive exception needs to be emphasized: the manufacturing of paints and varnishes (NACE 24.3) shows a productivity of EUR 37,700 per employee, which is significantly higher than the corresponding figures for Poland (EUR 25,000) and the Czech Republic (EUR 17,800).

Table D.23: Productivity of labour (value added per employee) in the Estonian chemical industry, 2000 to 2002

(1000 EUR / Employee)	2000	2001	2002
NACE 24.1	5.4	8.0	6.1
NACE 24.2	n/a	n/a	n/a
NACE 24.3	n/a	n/a	37.7
NACE 24.4	n/a	n/a	n/a
NACE 24.5	n/a	6.9	8.8
NACE 24.6	n/a	n/a	12.1
NACE 24.7	0	0	0

NACE 24	**11.5**	**15.2**	**15.2**
Specialty chemicals[1]	**n/a**	**n/a**	**11.9**

Source: EUROSTAT (2005) and personal calculations
[1] NACE 24.3 + 24.5 + 24.6

Summarising the above results, the specialty chemicals sector in Estonia assumes a high, constant share of the production and employment of the chemical industry which, in turn, is unable to participate in the steady growth of the manufacturing sector in general. With one exception, the productivity of labour is low. However, the lack of dynamics of the chemical sector is evident. Low value-added or productivity is not always necessarily a problem as long as a sufficiently strong trend is able to improve the position. Although the data presented do not allow us to draw a definitive conclusion, a positive trend can hardly be perceived for the (specialty) chemical sector of Estonia. It remains to be seen whether this finding is confirmed by, and can be extended to, foreign markets.

D.2.3.4 Foreign trade

In Estonia, the relative contribution of the chemical industry (EUR 308 million in 2003) to the total Estonian trade deficit (EUR 2,066 million) is about 15% smaller than that in Poland. This is in part due to the lower contribution of the chemical industry to the country's GDP.

Export of chemical products from Estonia in 2002 represented 121% of the corresponding sales of chemical industry. This fact can be explained by large quantities of chemical products being exported immediately after import by Estonian trading companies. In particular, this applies to basic chemicals, of which the equivalent of EUR 138 million is exported while only EUR 50 million is produced. On the other hand, chemical products worth 267% of the sale of domestic products are imported (see Table D24). This yields a foreign trade performance of -0.37, which is similar to both the Polish (-0.37) and Czech estimation (-0.35).[12]

[12] Trade performance = (export – import)/(export + import)

Table D.24: Development of foreign trade in chemical products in Estonia (in current prices), 2000-2003

Total exports (EUR million)				
CPA[1]	2000	2001	2002	2003
CPA 24.1	160.44	148.31	137.87	172.34
CPA 24.2	0.79	1.14	1.10	0.67
CPA 24.3	33.31	60.39	72.30	86.80
CPA 24.4	25.04	24.42	22.83	22.06
CPA 24.5	5.24	8.68	9.54	13.26
CPA 24.6	11.46	11.66	13.93	16.78
CPA 24.7	0.62	0.62	0.27	0.35
CPA 24	**236.89**	**255.22**	**257.85**	**312.26**
Cumulative index	100.0	107.7	108.9	131.8
Specialty chemicals[2]	**50.01**	**80.73**	**95.77**	**116.84**
Cumulated index	100.0	161.5	191.5	233.7
Total imports (EUR million)				
CPA[1]	2000	2001	2002	2003
CPA 24.1	199.22	188.92	186.47	226.17
CPA 24.2	5.69	7.70	10.34	10.16
CPA 24.3	54.84	55.14	65.04	73.46
CPA 24.4	88.43	101.17	110.83	112.55
CPA 24.5	60.49	89.99	98.77	97.30
CPA 24.6	53.64	71.65	74.65	79.03
CPA 24.7	14.46	16.73	20.71	21.39
CPA 24	**476.78**	**531.31**	**566.80**	**620.07**
Cumulative index	100.0	111.4	118.9	130.0
Specialty chemicals[2]	**168.97**	**216.78**	**238.45**	**249.79**
Cumulative index	100.0	128.3	141.1	148.2
Net balance (EUR million)				
CPA[1]	2000	2001	2002	2003
CPA 24.1	-38.78	-40.61	-48.60	-53.83
CPA 24.2	-4.91	-6.56	-9.24	-9.48
CPA 24.3	-21.53	5.25	7.26	13.33
CPA 24.4	-63.39	-76.75	-87.99	-90.49
CPA 24.5	-55.25	-81.30	-89.23	-84.03
CPA 24.6	-42.18	-59.99	-60.72	-62.26
CPA 24.7	-13.84	-16.11	-20.44	-21.04
CPA 24	**-239.89**	**-276.09**	**-308.95**	**-307.81**
Speciality chemicals[2]	**-118.96**	**-136.05**	**-142.68**	**-132.96**

Source: Statistical Office of Estonia (2005) and personal calculations

[1] CPA is the consumer counterpart of NACE; [2] CPA 24.3 + 24.5 + 24.6

Between 2000 and 2003, both exports and imports of chemical products (NACE 24) grew by an average of 10% annually; due to the large excess of imports, however, the deficit followed the same trend. In 2000, specialty chemicals contributed to, 21 and 35%, respectively, the export and import of chemical products, making up their contribution to the total deficit being almost 50%, however, less than their contribution to turnover (68%) or value added (73%). From 2000 to 2003, both the export and import of specialty chemicals showed a more dynamic increase than the export and import of chemical products in general. In particular, the export grew much stronger (33% per year) than the import of specialty chemicals (14% per year), resulting that specialty chemicals contributed only 34% to the deficit increase during 2000 and 2002. This has contributed to the stabilisation of the deficit in 2003. However, since as discussed, the turnover was not showing healthy dynamics; the competitiveness of the specialty chemical sector in Estonia is ambiguous.

In order to resolve this ambiguity, the study has looked further into another important aspect of foreign trade i.e. the partner countries involved. In 2003, 45% of all chemical products and more than 70% of specialty chemicals were exported to the former Soviet Union. The second most important export region was EU15 with 31% of all chemicals and 14% of specialty chemicals. Other countries are on the third position with %ages of 22 and 10, respectively, while exports to CEFTA countries (Czech Republic, Hungary, Slovakia, Slovenia, Romania, Bulgaria) play almost no role (< 5%). With regard to imports, the EU15 assumes the most important position: 56% of all chemicals and 75% of specialty chemicals come from this region. 27% of all chemicals are imported from the former Soviet Union and all other shares are in the order of 10% or below (see *Table D.25*). Being itself a member of the former Soviet Union, Estonia has evidently maintained its historical bonds to the successor countries. In particular, it receives from there considerable quantities of mass chemicals and exports lower quality specialty chemicals in return, in this way, maintaining an almost balanced trade relation. By contrast, the trade relation with the EU15 is very unbalanced with imports from that region alone being significantly higher than exports in all regions together.

Table D.25: Exports and imports of chemicals by main territories in 2003

	Chemical products		Specialty chemicals[1]	
	EUR million	%	EUR million	%
Export structure				
EU-15	89.4	30.7	16.2	13.6
CEFTA	5.9	2.0	4.8	4.0
Former SU	131.3	45.1	86.5	72.3
Other	64.6	22.2	12.1	10.1
Import structure				
EU-15	298.0	56.3	145.3	74.7
CEFTA	36.5	6.9	26.6	10.2
Former SU	140.8	26.6	9.6	4.9
Other	53.8	10.2	24.4	12.5

Source: Statistical Office of Estonia (2005) and personal calculations.
[1] CPA 24.3 + 24.5 + 24.6

This difference in foreign trade relations with different regions may also explain why in this specific case, the stronger growth of exports of specialty chemicals does not necessarily indicate a strong competitive position in general. To some extent, the chemical industry and the specialty chemical sector in particular are competitive, but this position mainly relates to the former Soviet Union where many consumers or users consider domestic products as inferior and EU imports as too expensive. With regard to the EU15, however, the competitiveness of the chemical industry is rather low. From this perspective, the trade balance with the EU15 would

certainly look even worse, if Estonia was not able to re-export chemical products that were bought for a favourable price from its eastern neighbours.

With regard to the potential impact of REACH, two effects may be foreseen. On the one hand, exports to countries outside the EU-25 (especially Russia and other members of the former Soviet Union), that is more than two thirds of its current export volume, will most likely be negatively affected, because registration costs will decrease the competitiveness of the Estonian chemical industry. With regard to specialty chemicals, this argument will even apply to four fifths of the exports. Evidently, these shares are much higher than those for the Czech Republic (about 20 %) or Poland (between 25 and 35 %). On the other hand, it is expected by several interview partners that REACH will render it more difficult to maintain imports of raw materials from outside the EU, on which Estonia depends even more heavily than the Poland, not to mention the Czech Republic. It is unclear whether or not these substances would be registered by their importers. In particular, it is believed that for reasons of administration and enforcement, it would be impossible to form registration consortia between manufacturers/importers from inside and outside the EU.

D.2.3.5 Conclusions from statistical data analysis

Of the three countries more thoroughly investigated in this report, the specialty chemical sector of Estonia shows the lowest degree of competitiveness. The prominent position of the specialty chemical sector within the chemical industry, which appears to be due to its competitiveness with the chemical industry of its eastern trade (and former political) partners rather than with the industry in other EU member states is contrasted by its stagnation and its low and hardly increasing productivity. In this situation, Estonia and its chemical industry are affected by REACH more strongly than the other countries. First, due to the very large share of Estonian exports to non-EU countries, competitive disadvantages arising from those exports (with the need to comply with REACH) are stronger than in Poland or the Czech Republic. Second, the strong reliance of the Estonian chemical industry on raw material imports from outside the EU and the lower degree of vertical integration (due to the size of the country) increases the risk of non-availability of these substances after the implementation of REACH. Summarizing these facts, the only seemingly favourable situation of the specialty chemical sector in Estonia appears even less favourable in the face of REACH. Due to the existing structural burden (as an important supplier of chemicals to the former Soviet Union) and the low technological standards, the short-term (cost-related) effects of REACH will come to bear more immediately and intensely, whereas the innovation-supporting effect of REACH will become effective much later.

D.3 Transposition and implementation of the Environmental Aquis

D.3.1 Introduction

When REACH enters into force, it will equally apply to all 25 Member States of the European Union. However, when being implemented, the new legislation will have to be embedded into specific national administrative and sectoral environments, which vary substantially between the different countries.

The preparations for REACH started some time before the accession of the NMS in May 2004, leading to the situation that the NMS were dealing with the implementation of the Acquis Communautaire, including the “Chemicals Acquis”, into national legislation, while European chemical legislation was already on the way to be reformed.

This situation is an important distinctive factor between EU15 and the NMS. It implies an “a priori” competitive disadvantage for the NMS chemical industries, as both public administration and private sector have to implement two new legislative frameworks for the chemical industry within a few years, investing scarce managerial and financial resources that are fundamental to

face the competition of the internal market. This situation may be aggravated by the fact that the NMS still are in the middle of an economic catching up process.

The chemical sector in the NMS is in general less competitive than in the EU15. However, the Chemicals Acquis and REACH have large overlaps, and the a full implementation of the current European legislation for chemicals can also be seen as a first stage for REACH implementation. Against the background that the average compliance with the current chemicals regulation in EU15 is far less than 100%, a fully implemented and enforced Chemicals Acquis would substantially improve the NMS' position with regards to the implementation of REACH. In some of the NMS the infrastructure for chemicals control in industry and public administration can be designed ex-novo and does not need to undergo a costly process to adapt existing administrative procedures. In consequence, it can equally be argued that the full implementation of the Acquis Communautaire facilitates the implementation of REACH.

The objective of this chapter is to provide available information on the completeness of transposition, implementation and enforcement of the Environmental and Chemicals Acquis in the NMS and to assess on that basis the potential implications for the implementation of REACH. Furthermore it provides succinct information on the impact of the Acquis implementation on the chemical industries in terms of financial and human resources on the one hand and capacity building for dealing with testing and registration procedures on the other hand. The positive and negative implications of the Acquis implementation for the preparedness of the NMS for REACH are discussed.

The methodology to achieve the objectives of this chapter has been extensive desk research, contacts to ministries and national experts, and the analysis of relevant parts of interviews carried out in the context of the case studies in the specialty chemicals sector in the NMS. It must be underlined that the available information concerning the efforts for complying in particular with the Chemicals Acquis in the NMS is scarce. The collection of quantitative data on compliance costs proved to be specially challenging, and only a fragmented picture can be provided.

D.3.2 Relation between the Chemicals Acquis and REACH

REACH is not the first chemical legislation at European level, and that not all elements of it are entirely new. In fact, the new REACH system is based to a large extent on the provisions of the already existing legislation.

The existing legislation – transposed in the NMS as "Chemicals Acquis" - contains different directives and regulations (see Annex 2 for detailed overview). The Environmental Acquis as defined in Chapter 22 of the Accession Negotiation does not fully cover all Community legislation in the field of chemicals. For the reason of completeness also relevant legislation from Chapter 1 (Free movement of goods) was taken into account.

With regards to differences between existing legislation and REACH, new provisions are associated with costs not included in the current EU legislation. There will be no difference under REACH in the treatment of 'existing' and 'new' chemicals, which face separate treatment under existing legislation. The main change when shifting from the Chemicals Acquis to REACH will be the transfer of risk assessment for substances from public authorities to industry. Directive 76/769/EC and Regulation (EEC) 793/93 will be repealed by REACH. At the same time, improvements in the efficiency of the system are designed to ensure that there are better incentives for developing new and safer chemicals and that requirements are drawn up in such a way that the competitiveness of EU industry is safeguarded.

To assess the impact of REACH on the NMS it is important to take into account its interlinkages with the existing legislation. As there is no direct one-to-one transfer of existing directives and regulations into REACH, it is not possible to present a comparison in matrix

format. However, important elements of the existing chemicals legislation have been taken over into REACH, e.g.[13]:

- The REACH proposal in general relies on the existing provisions on classification and labelling in the directives 67/548/EEC (substances) and 1999/45/EC (preparations). Annex X of the REACH regulation consolidates the testing methods of Directive 67/548/EEC.

- Provisions for the Safety Data Sheet remain largely the same. Annex IA of REACH takes over Directive's 91/155/EEC Annex. The SDS used for transfer of information in the present system will continue to be used in REACH. The SDS is a well-understood, and internationally accepted, tool for the communication of information about chemical hazards, risks, and risk reduction measures. SDS will be used as the primary communication tool for information developed under REACH. (CEC 2003b: 8).

- The placing on the market and use of a number of specific substances have already been restricted within the Community by Directive 76/769/EEC for many years. Annex XVI of the proposed REACH Regulation takes over these restrictions in a consolidated version into the Regulation.

- The list of substances exempted from the obligation to register has been taken from Existing Substances Regulation (EEC/793/93),

- Related to that, the list of criteria for exemptions from the obligation to register bases on experience in the operation with the New Substances Directive (67/548/EEC).

For industry (all stages of the supply chain) that means, that some duties will continue after REACH enters into force. Manufacturers/importers/downstream users need to:

- comply with any restrictions on marketing and use of substances and preparations (restrictions as set out in directive 76/769/EEC will be taken over by REACH in Annex XVI);

- classify and label substances and preparations that are placed on the market according to Directive 67/548/EEC and Directive 1999/45/EC;

- prepare safety data sheets (SDS) for substances and preparations (requirements in Directive 91/155/EEC will be taken over by REACH in Art. 29 and Annex IA);

- conduct risk assessments and reduce risks for any chemical agent occurring at the workplace (Directive 98/24/EC on chemical agents at work).

Elements which will be newly introduced by REACH comprise the generation of standard information for existing substances, instead of using available information for hazard identification. In addition to that, the safety assessment and the generation of an information package on safe use will be new. Furthermore the identification of uses and conditions of use through the manufacturer or importer of substances are new, as well as the set up of new communication flows in and between companies.

When discussing the ongoing implementation of the Chemicals Acquis in the NMS, it has to be seen that the full body of chemicals legislation is also insufficiently implemented in the EU15. The current level of compliance with classification and labelling and the Safety Data Sheet requirements at company level in EU15 is relatively low. In a recent survey 40% to 70% of the

[13] REACH proposal process description, DG ENTR homepage, http://europa.eu.int/comm/enterprise/reach/docs/reach/reach_process_description-2004_06_15.pdf.

Safety Data Sheets and labels of preparations were found to contain wrong or insufficient information (ECLIPS 2004). Also the capacity of SME formulators in EU15 to handle product safety issues is still comparably low (UBA 2004).

This implies that an incomplete implemented/enforced Chemicals Acquis in the NMS does not necessarily indicate a competitive disadvantage of chemical companies in the NMS, but potentially similarly unprepared parts of the chemical sectors in all EU-25 Member States.

D.3.3 Completeness of transposition, implementation and enforcement of the Chemicals Acquis

From the very beginning it was recognized that transposition and implementation of the EU´s environmental laws represents a challenge to the Accession Countries. This related both to the sheer scale of past environmental liabilities and the gap in the level of environmental protection in Central and Eastern Europe compared with the situation in the EU. It was recognized that full compliance with the Environmental Acquis will probably only be achievable in the long run (CEC 1998:1).

This turned out to be particularly true for the chemicals industry, which inherited contaminated sites as well as inefficient and polluting production processes. The chemical industry was confronted on the one hand with the more narrow defined Chemicals Acquis, but also with the so called heavy investment directives within the Environmental Acquis. These were amongst others the IPPC directive, the waste/waste packaging directive and the air pollution directive.

The Commission identified in its Communication three key challenges in the area of approximation of environmental legislation:

- Transposition and implementation of the Environmental Acquis as legislative challenge ; in the case of chemicals this meant for a number of countries to switch from a completely different legal framework to EU chemicals legislation

- A need to strengthen the administrative structure necessary for environmental management as institutional challenge; this includes the complete scheme of chemicals controls such as risk assessment, risk management, establishing inspectorates etc.

- Financing the investments costs of meeting the Environmental Acquis as financial challenge. As implied above, the heavy investment directives within the Environmental Acquis had a stronger impact than the Chemicals Acquis. However, chemical companies had to deal with both issues.

The following assessment of the degree to which the relevant parts of Environmental and Chemicals Acquis have been applied and executed in the NMS will give an indication of the preparedness of these countries for the implementation of REACH.

D.3.3.1 Transposition of EU chemicals legislation in the NMS

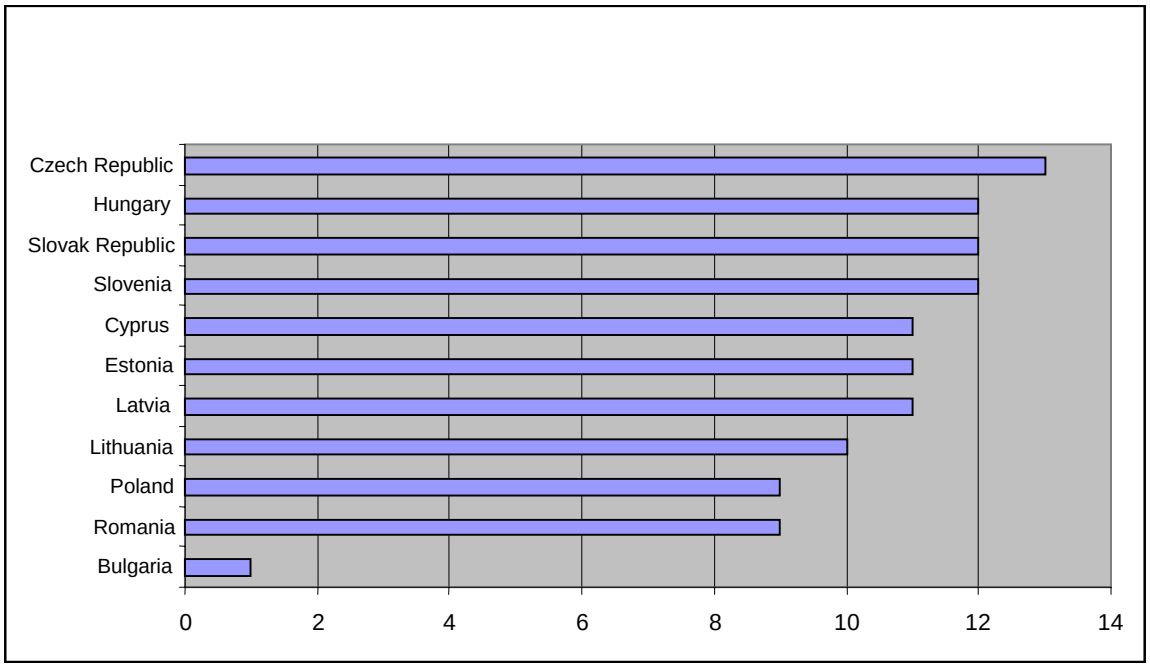
With accession of the NMS to the EU in 2004, almost all directives of the Chemicals Acquis had been transposed into national legislation. However, public administrations and private chemical sectors in different NMS were not all equally prepared for the single market. Apart from differences in market structure, administrative set ups etc., the schedule of transposition itself had an important effect on their preparedness for competition. Countries which started and completed transposition of chemicals directives earlier than others had gathered experience with

current EU legislation, companies got used to information requirements, and the responsibilities between public authorities for chemicals control had been established and stabilized. This in turn will have a positive effect on the implementation of REACH, which on the one hand takes up a lot of elements of existing chemicals regulation, and on the other hand can be easier implemented in a stable running system than in a legal framework which is still under development.

A first assessment of the compliance levels with EU environmental legislation in 10 CEE countries was done by the Regional Environmental Centre (REC) back in 1996. In the legislative field of chemicals, industrial risks and biotechnology the study showed an average compliance level of 27%, lagging significantly behind the average compliance level of 46% for all legislative fields. The study concluded that this field of environmental legislation generally has the lowest ranking among the seven regulatory areas analyzed. The 27 % of compliance as an average indicated only the beginning of the drafting or some very early attempts at regulation. However, in the case of chemicals and dangerous substances the situation was somewhat better, where packaging and labelling as well as specific permitting and record-keeping had received some attention (REC 1996: 9).

Much of the work carried out by the accession countries and the Commission since then has therefore focused on the transposition of the EU chemicals directives into national legislation. Between 1998 and 2002 the candidate countries were steadily making progress in the task of drafting laws and administrative regulations to transpose the EU obligations. Substantial parts of chemicals legislation was already in place in 1999 in the Czech Republic, Estonia, Hungary and Slovenia. During the screening process in 1999 there were no major problems identified in the field of chemicals legislation in most of the candidate countries. Full compliance with the chemical acquis was foreseen in all countries by end 2002 and there were no transition periods requested by the candidate countries in the negotiations with the Commission.

Figure 1: Number of chemicals directives implemented out of total 13 in Questionnaire (December 2002)

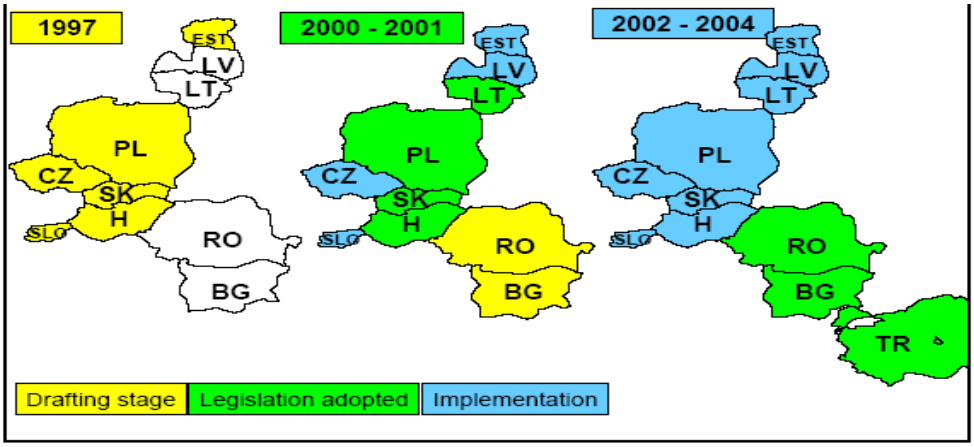


By end of 2002 the transposition of the Chemicals Acquis was nearly completed in all countries except Bulgaria as shown by figure 1 (Lang 2002). All new Member States had already reached a high level of alignment with the Chemical Acquis at that point of time. The Comprehensive Monitoring Report of the EU Commission on the state of preparedness published in November 2003 concluded for all countries that the legislation concerning chemicals was in line with the

Acquis, except for asbestos in Hungary and for biocides in Estonia, Lithuania, and Poland. In some new Member States further approximation was therefore made in 2003 and 2004 through amendments of secondary national legislation incorporating the latest developments on the EU level bringing their national legislation even closer to EU standards. In mid 2004, transposition of the Chemical Acquis has been finalised in all new member states.

Although this simultaneousness of transposition implies similar efforts for all ten NMS, this was not the case for two reasons. Firstly, the public and private chemical sector was in different "starting positions" in the different countries. Whereas Slovenia always had trade relations with western countries and therefore companies were already to a certain extent familiar with EU15 legal norms and standards, the Baltic States for example were integral part of the then Soviet Union and therefore more or less unprepared for EU legislation. Secondly and more important, some countries, like e.g. the Czech Republic, started (and completed) transposition of the Chemicals Acquis earlier than others, e.g. Poland, and were therefore able to distribute compliance cost over a larger period of time.

Figure 2: Approximation of EU chemicals legislation 1997 - 2004



Furthermore it would be wrong to assume that the chemical legislation as a whole is now in force and being implemented in the new EU member states. With transposition essentially complete in 2004, the debate switched course away from transposition of EU Chemical Acquis and instead focused on its implementation and enforcement. Gaps remain in implementation and enforcement and will continue to remain for some time, as will be shown in the following chapters.

D.3.3.2 The administrative framework for implementing the Chemicals Acquis

Having in place the necessary administrative and other structures for implementation and enforcement was the second element of approximation beside transposition of the relevant EU legislation. However, establishment of a sufficient administrative capacity to implement and enforce the legislation is more difficult, especially for chemicals, since various institutions are involved in chemicals management: different ministries, implementation agencies like national chemicals bureaus and various inspectorates for enforcement. Regarding the necessary administrative capacities there were three different conclusions made by the Commission in the Comprehensive Monitoring Reports in November 2003:

- Administrative capacities are in place and function adequately (Czech Republic);
- Administrative capacities are in place and function. Co-ordination between the organisations involved needs to continue to be enhanced (Estonia, Latvia, Lithuania, Slovakia, Slovenia, Poland); and

- Administrative capacities are in place and function, but more staff is needed. Co-ordination between the organisations involved needs to be further enhanced. (Hungary).

In most of the new Member states obviously coordination between responsible ministries and agencies lasted as the biggest problem in terms of approximation towards EU chemicals legislation.

The following paragraphs will describe and analyse the mandate of ministries, agencies or other governmental institutions responsible for various aspects of chemicals management; and assesses the available capacities for risk assessment and risk management, which will also play an important role under REACH.

Ministries, agencies and other governmental organisations
The new Laws on Chemical Substances and Preparations adopted by the New Member States during the last years typically assign tasks to different state administrations at the policy, implementation, and enforcement level.
At the **policy level**, the responsibilities for chemicals legislation has been divided in all new Member states between two or more ministries, in most cases including the Ministry of Economy, the Ministry of Environment, the Ministry of Health, the Ministry of Labour and social policy, and the Ministry of Agriculture. In almost all countries the leading role for chemicals legislation has been assigned either to the Ministry of Environment, the Ministry of Health, or, in the case of the Slovak Republic, the Ministry of Economy.

At the **implementation level**, several new member states have established a national chemicals bureau as central administrative coordination unit. In Poland for example, the Bureau for Chemical Substances and Preparations as subordinated institution to the Ministry of Health is the central administrative unit. The Bureau is the Polish responsible authority for the legislation on chemicals control in the Community. In Slovenia, the National Chemicals Bureau operates as a constituent body of the Ministry of Health. It deals with the preparation and implementation of regulations which govern the area of chemicals, such as procedures and requirements for registering new substances, assessment of new and existing substances, classification, labelling and packing of chemicals and measures for their appropriate handling; and coordination of good laboratory practice. In Lithuania, the implementation of chemicals legislation has been allocated to the State Non-Food Inspectorate (NFPI), subordinated to the Ministry of Economy. Its tasks encompass running of the EU systems for new and existing substances.

At the **enforcement level**, in almost all countries responsibilities for enforcement have been divided between different inspectorates including the Environmental Inspectorate, the Health or Sanitary Inspectorate, the Labour Inspectorate, and the Customs Authority.

In the Czech Republic, the Environmental Inspectorate and the Regional Health Authority inspect the observance of the provisions and decisions of the MoE in the field of environment and health with the right to impose penalties and remedial measures.

In Lithuania, main responsibilities for the enforcement of chemicals legislation have been given to three inspectorates: The State Non Food Products Inspectorate, the State Environment Inspectorate and the State Labour Inspectorate, including the task to collect and compile data on dangerous chemicals and preparations in a data base.

In Poland, the Sanitary Inspectorate is to supervise producers and importers of chemical substances and preparations to comply with the provisions of the Chemicals Act. The Sanitary Inspectorate is supported in this task by the Environment Inspectorate, the State Labour Inspectorate and the Customs Authority.

As shown, institutions to implement and enforce the EU chemicals legislation have been set up in all new member states and significant progress was made with regard to the necessary

administrative capacities. Nevertheless, some problems still remain in this area. Maybe the biggest problem as reported by some countries is the low number of staff at the implementation level. For instance, the polish Bureau for Chemical Substances and Preparations is clearly understaffed with a current staff number of 20 employees. The PHARE Twinning Project on "Chemicals directives and administration" recommended in March 2004 that there should be twice the number of risk assessors and risk managers at the Bureau and the reinforcement should be completed within the next two years. Otherwise, the Bureau will have problems fulfilling its role as Competent Authority under current and future EU legislation. Similar problems were reported in Slovenia, where the National Chemicals Bureau has a current staff number of 25. The PHARE twinning project on chemicals safety in Slovenia recommended, with the present number of staff at the NCB and the Health Inspectorate, to focus only on EU-oriented priorities. Similarly it is reported from the Baltic States that the responsible authorities are seriously understaffed, in some cases concentrated on 1-2 persons in the ministries, which have to work on different and complex policy areas at the same time.

Other co-ordinating mechanism

Beside lack of resources in terms of understaffing, the second problem that prevailed in the NMS with regard to the administrative capacity has been a low level of coordination among the responsible authorities. The Comprehensive Monitoring Reports from the Commission insisted on more and stronger coordination between the organisations involved in chemicals control in all new member states, except the Czech Republic.

In fact, we found only few examples of established intersectoral or interministeral coordination mechanisms in the NMS in the field of chemicals safety. But as was reported from the three Baltic States and from other countries, increased cooperation and coordination between ministries, authorities and stakeholders has taken place in the last one and a half year. It seems reasonable to suppose that this trend will be fostered through the ongoing public discussions on REACH as the example from Poland stated below suggests.

In Poland, as part of the preparation process for REACH, an institutional framework in form of a REACH Task Group was created to develop proposals and official positions with regard to REACH. This task group was assigned the official responsibility for REACH in Poland. The task group is coordinated by the Ministry of Economics and Labour. Its members include representatives of the Bureau for Chemical Substances and Preparation; the Ministry of Health and other ministries; the Polish Chamber for Chemical Industry, other associations and some companies; and environmental NGOs (especially WWF). The future plans for 2005-2007 foresee to increase the institutional capacity for the implementation of REACH and to set up an intersectoral platform of co-operation for REACH including all major stakeholders.

In Hungary, the Act on Chemical Safety established the Inter -Ministerial Committee for the coordination of chemical safety. This committee operates for the purposes of coordinating the management of chemical safety, providing an integrated and efficient means for decision-support procedures and promoting active participation of stakeholders in ensuring chemical safety. (Government of Hungary 2002: 33).

In Slovenia the Government established an intersectoral committee on chemical safety. The committee coordinates the work of the responsible ministries regarding the implementation of the national policy and of the programmes and measures set on the basis of the Chemicals Act and other pieces of legislation concerning chemicals.

This process of re-shaping and building of institutions for implementing and enforcing the Chemicals Acquis results in another problem, which is being reported from the Baltic States: The continuous change in the institutional set up for the chemicals management, support and enforcement structure has led to confusion amongst chemicals companies, which frequently do not know whom to approach with which question. This will probably be similar in other NMS, and although this problem is only of a temporary nature, it might seriously hamper the

implementation of REACH, when the newly installed institutional framework will have to be adapted again to the new provisions of legislation.

Capacity-building for risk assessment
In the last years the responsible authorities in the NMS made a lot of efforts to provide their staff with training courses in risk assessment and the main instruments of EU chemicals legislation. Especially the twinning projects in the field of chemicals where used quite heavily by some new member states to obtain practical knowledge from experienced specialists of the EU-15 member states and to converge with the common EU standards on risk assessment. As was reported by several of the twinning projects this strategy seemed to be very successful and was very much appreciated by the NMS.

During the last years, the Ministry of Environment of the Czech Republic held several seminars on various issues for administrative staff: on notification, risk assessment, and on enforcement for inspectors. Additionally, there were training lessons given on main instruments of EU chemical legislation (classification and labelling; Safety Data Sheets, Restrictions, notification of new substances) and inspection practice during the course of the twinning project with the Austrian Federal Environment Agency.

In Lithuania, the twinning light project "Strengthening of Institutional Capacity to Implement EU requirements on chemicals and GMOs management" provided training for governmental officials on notification and risk assessment issues (procedures, documentation, data basis, management and etc.). The Baltic Environmental Forum (Riga, Latvia) held several workshops on issues implementing the new chemicals control legislation including risk assessment in the framework of the Regional project "Chemicals Control in the Baltic States". Arrangements for organizing studies in toxicology/ecotoxicology were also made in bilateral cooperation with Swedish Environmental Protection Agency and Chemicals Inspectorate.

In Slovenia, training for NCB staff on notification procedures for new substances and trainings for two NCB experts on eco-toxicology and three experts on toxicology was included in the first twinning project on chemicals safety. Since an overall evaluation during the twinning project showed, that the then present system of RA in Slovenia did not assure a fully operational system in accordance with the EU practice, a blueprint for the effective institution building of a central administration entity carrying out RA tasks was designed and presented to the responsible Ministries in April 2002. Further trainings on enforcement are foreseen in the course of the second twinning project with Austria.

Capacity-building for risk management
Information derived from twinning projects and expert interviews indicate low capacities for risk management in the NMS. This can be explained by the fact that much efforts during the last few years have been given to the introduction of EU-law on chemicals into national legislation. The development of a policy on existing chemicals and on risk management had no priority so far, but this has changed recently since the formal accession procedure has been successfully completed.

The available information from Poland and Slovenia shows that the cooperation between different institutions in the field of risk management is much less successful compared to the cooperation in risk assessment. For instance, in Poland it was confirmed by the PHARE twinning project that considerable progress has been made in developing a network with experts from institutes who can contribute to the risk assessment process, but that a similar network in the field of risk management is not equally well developed (Witzani and Andrijewski 2004: 33). In fact, there was little participation from the ministries in a seminar on risk management and the relevance of the chemicals legislation for the policy areas of the ministries was not obvious to potential participants. Since quite similar reports and statements were received from the three Baltic States it can be assumed that the capacities for risk management throughout the NMS are quite low.

Number of GLP certified test laboratories
Much progress can be assessed with regards to the number of GLP certified test laboratories in the NMS. In the Czech Republic three institutes are currently certified according to GLP and two more applying for that certification and will probably get certified this year. The number isn't expected to further grow as the testing capacities are considered to be adequate.

The evaluation of the situation in Slovenia in the field of GLP during the first twinning project on chemical safety showed that the relevant GLP directives are in place and implemented in full conformity as are the administrative procedures. The number of inspectors (3) has been regarded as proportional to the expected work load (5-10 research centers) and the inspector's level of knowledge. The laboratory staffs are well qualified, but since the number of testing facilities in Slovenia applying GLP, being covered by GLP inspections is small, the possibility for on-the-job training of GLP inspectors in Slovenia is limited. Therefore the possibilities for future participation of the Slovene GLP inspectors in joint activities at EU and OECD level will be important in addition to the regular internal education in order for them to maintain and build up their professional knowledge and experience (Federal Environment Agency).
With regard to the information given on the present situation in Poland, there are about 10 laboratories available, mostly toxicological laboratories. But only two of them are certified according to GLP. In fact the same institute got GLP certified once for toxicological and once for ecotoxicological testing. The remaining laboratories can do tests on physical-chemical properties and three of them are specialised for tests on bioaccumulation, but none of them is GLP certified. Furthermore, the number of GLP certifications is not expected to rise in the near future. Since the expertise on risk assessment is available in Poland this can change very quickly in response to a stronger market demand for testing capacities introduced by REACH.

The testing capacities have been assessed as adequate in most of the NMS in terms of duties under the current EU chemicals legislation. With regard to the very low number of new substance notification in the NMS this capacity of GLP labs might turn out to be sustainable in the long run, however it might be insufficient in the mid-term future when the bulk of the phase in substances will be tested and registered after the implementation of REACH.

D.3.3.3 Costs of compliance

The implementation and enforcement of the Chemical Acquis triggers costs which, to different amounts, have to be borne by public authorities and by industry.

The cost for industry is the establishment of management systems, mostly IT based, to comply with the Acquis.

A cost factor affecting both industry and authorities is the new substance notification. Industry has to notify new substances, and national agencies are responsible for their evaluation.

The amount of investment required to comply with the environmental acquis has been discussed in the last ten years. A first study in 1997 carried out for DG Environment estimated the amount of environmental investments required in the Candidate countries to reach compliance at 120 billion Euro (EDC and EPE 1997). More recent efforts to calculate the necessary investments produced lower figures, estimating the costs of compliance

Table 1: Estimated Costs for Compliance in the new Member states (1998-2005)

Country	Total Environmental Acquis
	Mill. Euro
Bulgaria	8610
Cyprus	1086
Czech Republic	6600 - 9400
Estonia	4406
Hungary	4118 - 10000
Latvia	1480 - 2360
Lithuania	1600
Malta	130
Poland	22100 – 42800
Romania	22000
Slovak Republic	4809
Slovenia	2430
Total	79260 - 110001

between 80 and 110 billion Euro (DANCEE 2002: 37). Nevertheless, financing the necessary infrastructure for compliance with EU environmental legislation poses a major challenge to the new EU Member states. The figure of 2-3% of GDP per annum is mentioned as the level of spending required by the new Member states to ensure full implementation (CEC 2001: 4). Current annual environmental expenditures in 2000 ranged between 0.5 and 1,6 of GDP (CEC 2002: 13).

There are only few studies available making any cost estimates for the implementation of the Chemicals Aquis (Table 2). This is due for two reasons. First, the investment costs for implementation of the Chemical Aquis in the four countries where studies have been carried out are roughly between 0,5-1,5 % of the total investments required for compliance with the EU environmental legislation. Compared to the investments needs for the heavy investment directives this is almost a negligible factor. Second, detailed cost estimates and financial plans had only to be prepared for those directives, for which the candidate countries requested transition periods. This was not the case for any directive of the Chemical Aquis in the NMS; consequently no financial plans are available. The lack of requests for transition periods can be seen in itself as an indication for the relatively modest financial efforts to comply with the Chemicals Acquis.

In Lithuania, the investment for the public sector was estimated at 493.000 Euro (Soil and Water 1999: 65). The sum of investments to be made in the Lithuanian public sector are due to legal transposition of the EU requirements in Lithuanian chemicals legislation, setting up a new Chemicals Supervisory Committee, increasing technical capacities and expertise by building up new laboratories, and staff training. Operational costs in the public sector for implementation of requirements, administrative procedures and enforcement are around 870.000 Euro per year. Enforcement of the requirements in the Directives and Regulations at the regional level is accounting for more than half the total operational costs. Another large part of the annual operational costs is caused by the administrative procedures on new and existing substances, and bans and restrictions on dangerous substances.

Table 2: Estimated Costs of Compliance with the Chemicals Acquis 1998-2005 (Thousands of Euro)

	Public Sector	Private Sector
Czech Republic	**3.157-3.298**	**3.737-28.420**
Lithuania	**(493 initial investment) 870 annual operatimg cost**	**(12.000 initial investment) 4000 annual**
Poland	**n/a**	**(60.000-101.250 annual investment cost) 180.000 annual operating cost**
Slovenia[1])	**1.830**	**1.170**

[1]) only O&M costs, investments costs not included

In the private sector, the investments to be made by the Lithuanian enterprises in the chemical, oil processing, and rubber/plastics industry were estimated around 12 million Euro. The highest investments are related to measures (new trucks) to comply with the regulation on transport of dangerous goods (3,7 million Euro). Also high investments were estimated to be involved with setting up of hazard communication units in the enterprises (3,45 million Euro) and the compilation of safety data sheets (2,5 million Euro). The annual operational costs for the industry were estimated at 4 million Euro. The highest operational costs are involved in continuous procedures and testing of existing chemicals (1,85 million Euro), followed by procedures and testing for new chemicals (566.000 Euro).

In the Czech Republic, the average annual recurrent costs for the state administration are about 3 million Euro. Annual costs for the private sector range between 3.7 million and 28 million Euro. With regard to the total annual cost of 1.149-1.685 million Euro (World Bank 1999: 7) for

applying the whole Environmental Acquis in the Czech Republic, the overall annual expenditures for implementation of the Chemical Acquis represent 0.6 to 1.9% of overall annual compliance costs (Bucknall, Cestti, Hughes 2000: 15).

A REACH Impact Assessment carried out in the Czech Republic calculated total cost for registration 50 to 160 Million Euro. Broken down to the 11 year phase in of REACH this would result in annual cost between 4.5 and 14.5 Million Euro. These numbers are comparable to the CA implementation cost, also in the respect that they represent only a fraction of the EA implementation cost. Taking into account that the figures for cost calculation correspond roughly to the first ADL study carried out for the VCI, which exceeds ECB numbers by far, it can be concluded that the annual cost REACH implementation will be even lower.

There is no detailed study on the compliance costs of the chemicals aquis available for Poland. The first CEFIC/PHARE-Project estimated the annual average costs of compliance for the Polish chemical industry as 2 % of the total turnover (total revenue 1998: 8,97 bill. Euro = 180 million Euro annual costs for compliance). The adaptation costs, which will be once only costs induced by EU approximation, were estimated very roughly to constitute 300-450 % in comparison with the routine annual costs (CEFIC 1998: 96). This amounts to estimated costs of compliance ranging between 540 and 810 million Euro in total, or annually 60-101 million Euro over 8 years. These estimated compliance costs reflect the fact that the Polish chemical sector is by far the largest one in the NMS. Similarly, the cost for industry induced by REACH have been estimated by the Polish Chamber of Chemical Industry between 340 and 600 Million Euro, resp. annually 31 – 55 Million Euro over 11 years.

With regard to implementation of the internal market regulations for chemicals covered by the EU White Paper from 1995, the World Bank concluded in the case of Slovenia that "formal adoption of White Paper measures relating to specific the products such as chemical substances will have little financial cost to the public sector, since producers and users will bear most of the cost." (World Bank 1999a: 34). The total investment costs for the period 1998-2005 in the field of chemicals and GMOs was estimated as zero. The annual costs for operation and maintenance during this time period were estimated at 3 million Euro for both the public and the private sector, with a share of 61 % for the public sector and 39 % for the private sector. An estimation of REACH registration cost made by the Slovenian chemical industry association GZS resulted in total cost amounting to 15 Million Euro. Spread about the 11 year phase in period, the annual cost for industry would sum up to 1.4 Million Euro, which is in the range of estimations for compliance with the CA, and very little as compared to total EA implementation cost.

When comparing the cost for implementing REACH with the Chemical Acquis compliance cost, two issues have to be borne in mind. Firstly, the here mentioned numbers are based on Impact Assessments which have been carried out in some of the NMS and could not be verified in the frame of this report (see part three). Currently ongoing Assessment activities might well come to different results. Secondly and more important, the cost for the implementation of REACH would partially replace the compliance cost for the Chemical Acquis, and can therefore not simply be added to the overall compliance cost. Although this substitution effect can not be quantified, it is obvious that in implementation and enforcement at the company level it is difficult to separate between Chemical Acquis and REACH related efforts.

D.3.3.4 Status of Implementation and Enforcement and relevance for REACH

Concerning the above described activities in the NMS on transposition, implementation and enforcement of the Chemicals Acquis some general conclusions can be drawn:

- Transposition of the Chemicals Acquis has been finalized in all new member states. In some of the NMS, like Poland and the Baltic States, a great deal of the subsequent legislation following the framework chemicals act has been adopted during late 2002 and 2003 or even in 2004, and therefore this provisions entered into force just recently, leading to a relative delay in implementation and enforcement which might hamper the

smooth implementation of REACH. Countries which had finalized the transposition of the Chemical Acquis earlier had more time to sample experiences with the testing and notification procedures and requirements and are better positioned with regard to the implementation of REACH.

- Much progress was made concerning implementation of the chemicals acquis and strengthening of the administrative capacities at all levels. The responsible authorities for implementation of the EU chemicals legislation were set up in the new Member States and the division of responsibilities between different state administrations are clear cut and well pronounced in the framework laws for chemicals and preparations. Limitations still exist as low capacities in terms of understaffing in some of the National Chemicals Bureaus and will most probably be seriously challenged by the implementation of REACH.

- Training for administrative staff on main instruments of the EU chemicals legislation (Classification and Labelling, Safety Data Sheets, Restrictions, Notifications of New Substances), on risk assessment, and on enforcement for inspectors were of highest priority for all new Member States. The level of expertise gained by the risk assessors in the new Member States during the last few years is regarded as good and appropriate to secure the implementation of the current EU chemicals legislation. If the introduction of REACH will lead to a high number of necessary substance evaluations in the new Member States, and especially in Poland, the number of trained risk assessors in the administration might turn out to be too low for this task.

- The number of testing laboratories is regarded as appropriate for implementation of the current EU chemicals legislation. As the need for testing will much increase for the existing chemicals under REACH this can be very challenging to the current number of GLP certified testing laboratories. The capacities in Poland with its comparably big chemical industry are very low and might look a little bit worrying, but this situation is expected to change quickly in the next upcoming years under REACH.

- Risk management has not been a priority in the new Member States in the last years, but with transposition completed and most of the institution-building problems solved this has changed recently. Apparently, the coordination and cooperation between Ministries and the NCBs must be strengthened in this area.

- Strengthening of enforcement activities is still going on in the markets of the new Member States. A remaining challenge is the need for better coordination at the enforcement level since various inspectorates are involved in this task. The coordination of enforcement will become even more important under REACH as the new system will lead to many new classification and labelling duties for existing chemicals and the inspectorates have to supervise the authorised chemicals and maybe a greater number of restricted chemicals.

- Little information is available with regards to the cost of compliance with the Chemicals Acquis. Available data indicates that these compliance costs are marginal compared to the overall Environmental Acquis compliance costs. Cost estimates for the implementation of REACH made in some NMS indicate a level of compliance costs comparable to the implementation of the Chemicals Acquis. Furthermore, the compliance cost for the Chemicals Acquis will partially be substituted by REACH implementation costs. Moreover, although the costs of compliance with the Chemicals Acquis were regarded as additional cost burden on the existing production, the general off-sets in terms of environmental and health benefits were evident and acknowledge by the chemical industry.

D.3.4 Implications of Acquis implementation on the chemical industry in the NMS

Apart from the cost impact of compliance with the Chemicals Acquis, there are also indirect indicators from past years adaptation process which reflect the status of preparedness of the NMS chemical sector for REACH. This includes the number of new substances notifications in the NMS since the framework law on chemicals and preparations entered into force; the relationship between Acquis implementation, restructuring and foreign direct investments; the change in production and products maybe triggered by the implementation of the Chemicals Acquis; and the availability of environmental managements systems in companies of the chemical industry.

D.3.4.1 New Substance Notifications in NMS and experience with testing and registration at company level

The number of new substance notifications in the new Member States since 2001 is very low compared with the 250-300 new substance notifications per year in the old EU-15. In the Czech Republic the Law on Chemicals and Preparations (157/1998) entered into force with a two-year period of grace in 2000. The first year for notification of new substances was thus 2001. The entries from the database of the Ministry of Environment for 2001 and 2002 (around 2100 entries for each year) used in the REACH Impact Assessment carried out in the Czech Republic are relying to existing chemicals on the market. Information had to be provided according to the EU Existing Substance Regulation for substances with production volumes >10 tonnes (available information only). The number of new substances notified in the CR is small. Between 2001 and 2004 only six new substances were notified and probably another six new substances are currently in the process of notification. In Estonia were 1-2 new substances notified from one single company since 2001. There were no notifications for new substances reported from Latvia and Lithuania. According to the interview with the Slovene Chemicals Industry Association there have been no new substances notified since the Chemicals Act entered into force in 2000. Even Poland had no new substance notifications since the Law on Chemicals and Preparations entered into force in 2002.

Table 3: Number of New Substance Notifications in selected NMS (2001-2004)

Czech Republic	**6**
Estonia	**1**
Latvia	**0**
Lithuania	**0**
Poland	**0**
Slovenia	**0**
Total	**7**

Since the number of new substances is almost zero in the new Member States the foreseen lower requirements for registration of new substances under REACH will have almost no positive effect on the new Member States in terms of potential cost savings, if the frequency of new substance notifications remains at this low level.

Due to the very low number of new substances and little testing requirements for existing chemicals the experience of chemicals manufactures and importers in the NMS with EU testing and registration procedures is very limited in practice. Testing for chemicals has been usually outsourced by the companies as was reported from Poland and Slovenia. Some companies in Poland nevertheless did in-house testing in the past and have the necessary capacities. Furthermore, in the last years a lot of training on testing and notification procedures has been provided for companies in the NMS. For instance, in the Czech Republic several consultant firms have provided trainings courses for companies and also the Chemical Industry Association was very engaged in this field. The lack of practical experience is therefore not regarded as a major problem. However, it will only turn out after the introduction of REACH if the little experience with testing and registration until today results to be a barrier to the implementation of REACH.

D.3.4.2 Impact on Markets and Companies

Acquis implementation, restructuring and FDI

Like other parts of heavy industry in the NMS, the chemical industry was characterised by inefficient and polluting production processes at the beginning of the 90ies. Being a capital intensive sector, this was a substantial competitive disadvantage on international markets. The rapid modernisation of large parts of the chemical industry, which has been reported from most of the countries, was only possible through strong inflow of FDI.

Since the accession of the then candidate countries became predictable, investors from EU15 or third countries were even more attracted to mark their claim early on these emerging markets. The Acquis transposition and implementation guaranteed a stable legal environment and a level playing for industry – an indispensable prerequisite for large investments.

As it was reported from Poland, the Czech Republic and Slovenia, the implementation of clean production processes for compliance with the Environmental Acquis was a costly venture for chemical companies, which they could only manage with the help of foreign investments. For other NMS this will probably not have been different. Partly this process is still ongoing, as Poland and the Czech Republic for example have requested (and been granted) transition periods for some of the heavy investment directives (IPPC, air pollution, waste/packaging waste). As these transition periods partly last until 2011, investments will be needed in this area for quite some time, which might hamper competitiveness of the chemical sectors for two reasons – on the one hand financial resources are still bound to the modernisation process, on the other hand the production technology is still not fully competitive.

From Hungary it is reported that FDI focussed on specific sectors of the chemicals industry such as paints, detergents and fibres, which consequently are well positioned on the domestic market and also for the single market. In cases where western companies took over entire Hungarian enterprises, investments were also made in to comply with EU15 environmental standards and legal norms. For these companies, the implementation of REACH will happen under the same conditions as for comparable EU-15 companies. Similar situations – with companies or entire sectors taken over by western multinational companies – are reported from Slovenia, the Czech Republic, and Estonia.

Market restructuring

Market structure of the chemical industry in the NMS was different from EU15 at the beginning of the 90ies. Few large entities dominated the sub-sectors, or in some cases the entire chemical sector. The rapid shift to market economies changed this picture, through privatization and breaking up large companies into more specialised smaller units, while at the same time a large number of SMEs were founded. This development resulted in a large number of only loosely organised small companies. This explains the low degree of organisation of the chemical industry which has been reported from almost all NMS. As a consequence, the awareness of chemicals legislation among companies in general is lower in the NMS than in EU15, in particular with regards to SME. This is not the case for companies organised in the respective national chemical industry associations, but consistently it was reported that the coverage of companies through these associations is very limited.

As a kind of counter-reaction to further scattering of the chemical industry landscape in the NMS, the accession has geared the efforts for regional concentration and accelerated the trend of vertical integration in the chemical industry of the NMS in order to stay competitive. As a result of this process the NMS are heading towards an industrial structure already existing in the EU-15 countries. Whereas this trend is mainly driven by the need to secure feedstock supply and to obtain compete production capacities, the tendency towards a small number of large companies with a broad range of products controlling major parts of the markets is of direct relevance for the manufacturer-downstream user relationship under REACH in the NMS. Further these large companies with high production volumes are in a much better position to

deal with the registration costs under REACH as was confirmed by the impact assessment studies in Germany and France.

Privatization is still an ongoing process in the region. However, in some countries such as Hungary and Slovenia the privatization process has already taken place. In contrast, in Poland and the Czech Republic the privatization of heavy chemical industry plants is still ongoing. These large state-owned chemical companies dealing mostly with production in basic chemicals and fertilizers do not yet fully comply with EU environmental regulations and they still apply to a certain extent obsolete environmental protection technologies. However, as the registration and testing costs under REACH will have only little impact on these bulk products, their competitiveness will probably not further hampered through this regulation. As restructuring and privatization of the chemical sector is obviously necessary and is already foreseen in the government strategy for the chemical industry until 2010, the necessity to comply with EU environmental regulations will enforce adjustment in this area and can thereby contribute to a faster restructuring.
SMEs throughout the NMS were seen as generally less prepared for accession and compliance with the Chemicals Acquis as they serve only local markets and had no need to comply with international or EU standards. It was pointed out that the SMEs might suffer from environmental, legislative and administrative requirements after enlargement due to their insufficient financial, human resources, and technological capacities to deal with these issues. It was further reported that mid-sized companies had a transaction cost disadvantage against large companies in international activities in the past and therefore enlargement makes them more competitive, through leading to a level playing field.

From a number of countries it has been reported that companies see the accession to the EU – including the adaptation to the corresponding legal framework – as only one factor amongst others impacting on their industry. A Hungarian expert described EU Accseesion as one element of the overall trend towards a globalized chemical market. This corresponds to the statement made by a Polish expert saying that indeed products and markets are changing rapidly, but not triggered by Accession.

Production and products
Considering the impact of the Acquis implementation as potential source for product change, it was confirmed by the chemical industry associations in the Czech Republic, Hungary and Poland that the implementation of the Chemicals Acquis has not had any significant impact on the products portfolio in the chemical industry. Fulfilling the environment requirements has been considered as additional investment cost for the existing production, instead of triggering effects and solutions such as optimizing products.

Although implementation of the Chemicals Acquis has been considered as additional costs, companies also acknowledge that this investment in general was rewarded with advantages in terms of evidential health and environmental benefits. Also mentioned was the additional higher credibility gained due to a higher environmental performance. In this sense the compliance costs were not regarded as disadvantage. Furthermore, the chemical industry regards the EU Accession and implementation of the Acquis as only one impact factor among others in the context of an ongoing globalisation of chemical markets as was confirmed by Hungarian and Polish experts. From this perspective, a more positive stance can be taken since accession improves the access to other markets.

In some countries, e.g. Poland, the current product structure is not regarded as competitive, especially the basic chemicals sector. There is a need for more sophisticated products, due to the inflow of cheaper competing products from the east. However, it was mentioned that as a result this new product structure could be more vulnerable to the implementation of REACH. Due to these changes in the product portfolio away from basic the chemical industry, expectations about higher investments in R&D activities were confirmed by the chemical industry association from the Czech Republic, Hungary and Poland.

D.3.4.3 Availability of Environmental Management Systems

The requirements for fulfilment of international environmental management standards, i.e. achievement of assumed economic goals coupled with observance of environmental protection provisions are regulated by the ISO 14000 standard and EMAS regulation.

In mid 2002 almost forty large companies in Poland were in the course of implementing ISO 14000 standards. A dozen of those firms had been certified, verifying that environmental management systems according to ISO 14000 standards were in place. Until now the number of certifications is still limited and restricted to large companies. Nevertheless, environmental managements systems do exist in most of the large companies, though not certified according to ISO standards. SMEs were reported to catch up rapidly, probably due to competitive pressure and demands from customers. Similar reports were obtained from the Czech Republic and Hungary, but emphasizing, that SMEs are struggling with difficulties because of the financial burden associated with implementing these standards.
Moreover, the implementation and enforcement of the environmental acquis is supported by essential voluntary initiatives and best practices implemented by the EU chemical industry such as Responsible Care. In Poland, the number of enterprises participating in the Responsible Care programme is steadily rising and covered 32 enterprises in mid 2003. These are mostly large companies, with a sizeable share in employment and production of the chemical sector. In Slovenia, HSE information is available from 17 companies participating in the Responsible Care programme, representing 70% of turnover and employees of the sector and most of these companies have also experiences in ISO 9000/14000 standards. Since 2000, CEFIC has been implementing a plan to encourage Responsible Care programmes in the three Baltic States and Slovenia. The support for these programmes will continue under the new joint training programme of the Commission, CEFIC and CEEC federations (ChemFed/ChemLeg 2 project) launched in May 2003.

D.3.4.4 Acquis impact on private sector and relevance for REACH

Concerning the described implications of the acquis implementation for companies in the chemical industry in the NMS regarding new substance notifications, market restructuring, product change, and the availability of environmental management systems some general conclusions can be drawn:

- The number of new substances notified between 2001 and 2004 in the new Member States is very low. Thus the experience of manufacturers and importers with EU registrations and testing procedures is very limited in practice. However, due to the large amount of training courses provided to companies throughout the NMS this is not regarded as a big problem for the implementation of the current EU chemicals legislation and future REACH implementation. In contrast, the low number of new substances creates a disadvantage to the chemical industry in the NMS since potential cost savings as result of lower requirements for new substances as envisaged by the REACH system will have no positive effects in the NMS.

- Implementation of the Environmental Acquis was a costly venture for chemical companies in the NMS and further investments will be needed for quite some time. This might hamper the implementation of REACH since financial resources are still bound to the modernisation process.

- With regard to SMEs, the problems reported from the NMS are quite similar to the statements made in various REACH impact assessments with regards to SMEs in the EU-15 Member States. The awareness of REACH is low, and the administrative and financial burden will be challenging.

- Changes in the product portfolio of chemical companies have taken place in the last years. However, these product changes were not triggered by the implementation of the Chemical Acquis. Further changes towards more sophisticated products away from basic chemicals are expected in the future leading to higher R&D investments in the NMS. If this will take place, more companies in the NMS can benefit from the exemptions for substances used in R&D under REACH.

- The number of companies applying environmental management systems in the NMS was reported to grow steadily. Nevertheless, the number of companies officially certified according to ISO 14000 is still limited and restricted almost exclusively to large companies. However, SMEs are catching up rapidly due to competitive pressure and customer demands. Moreover, the implementation and enforcement of the Chemicals Acquis is supported in the new Member States by voluntary initiatives such as the Responsible Care programme. Since REACH will strengthen the responsibility of the chemical industry for its products, the more chemical companies apply EMS and participating in voluntary initiatives like RC, the better for the implementation of REACH as these companies have already developed the necessary capacities and are prepared to take over and fulfil their responsibilities.

D.4 Overview and analysis of past REACH impact studies

D.4.1 Introduction

The objective of this overview is to report the basic assumptions, the applied methodology, assessed impacts and the results of REACH impact studies carried out in the New European Member States, NMS.

Impact studies of different scope and detail have been carried out or are ongoing in seven of the ten New Member States: the Czech Republic, Estonia, Hungary, Lithuania, Poland, Slovakia, and Slovenia. Latvia is planning to launch a study in 2005 at the earliest, while the authorities, relevant organisations and companies in two remaining countries, Cyprus and Malta are not planning to carry out REACH impact studies.

1. Only the studies performed in Poland (additional staff requirements for the implementation of REACH), the Czech Republic, Slovakia, Lithuania and Slovenia (a short preliminary report) are already completed.

2. The results of the Lithuanian study were not released.

3. Studies in Hungary, Estonia, Poland (2nd study on impacts on the chemical industry) and the Czech Republic (2nd study on impacts on several DU sectors) are ongoing. The results are expected in 2005. The assessments made here are based on interviews and presentations of preliminary results.

4. Latvia will launch the REACH impact study in early 2005. Only the preliminary assumptions and plans could be reported.

5. Although Cyprus and Malta are not carrying out any studies on the REACH impact on industry they are aware of the REACH issue. Public authorities in these countries are monitoring the development of the matter.

This overview summarizes and analyzes the objectives, methods and results of the impact assessments gathered and compiled and opinions expressed in expert interviews. All information on the REACH impact studies in the NMS available up until the end of January 2005 has been taken into account.

Chapter D.3.2 describes the methodology applied to this study. Tab. 1 presents the type of information sources on REACH impact studies, chapter D.3.3 provides an overview and summary of the impact studies on REACH carried out in the NMS, and chapter D.3.4 draws conclusions for all studies.

D.4.2 Methodology, information sources, relevant authorities

D.4.2.1 Applied methodology

A variety of activities to assess the impact of REACH is ongoing in the NMS, partly initiated by public authorities, partly carried out by industry associations or even individual companies. However, these activities are for a number of reasons not always accessible. In some NMS the studies are not yet completed and the intermediate results and/or work progress are confidential. In other cases the final reports on the impacts of REACH are confidential and not available, or the authorities responsible for the studies have decided not to publish full reports.

Information on REACH impact studies was gathered in several steps. Firstly, the Internet was screened for any data on REACH and chemical industry in the New Member States. Then, the responsible authorities and associations interested in REACH were identified. The next step was

searching for contact data, including the people involved in the REACH consultation/legislation process at the previously identified institutions. Having found the relevant personnel, letters requesting any information on performed impact studies were sent. This, in turn, was followed by telephone conversations, and – in some cases – by personal visits. In the end, four full reports were received; from the Czech Republic, Slovakia, Slovenia and from Poland.

D.4.2.2 Information sources

The data necessary to perform this study was gathered from various sources[14]:

A. Direct sources of information on REACH impact studies:
1. Study reports and their summaries;
2. Presentations of studies
3. Interviews with authors of the studies

B. Indirect sources of information, such as:
4. Publications on the REACH impact,
5. Interviews with relevant authorities and people with access to impact studies
6. Seminars and conference presentations available on the web,
7. The results of public internet consultations.

In Tab. 1 below we present information sources on REACH impact studies in NMS according to their type.

Tab.1. The information on REACH impact studies in NMS

Country	Full reports	Presentation using the reports findings	Written information about the report	Interviews			Other
				P	T	M	
Poland	1 (1st report)	9 (2nd report)	5 (2nd report)	4	3	6	
Czech Republic	1	2	2	3	2	4	Presentation of the Czech position
Hungary	0	1	2	1	4	10	questionnaire
Slovak	1	0	1	1	1	10	questionnaire
Slovenia	1	0	1	0	3	3	
Lithuania	0	0	2	0	3	8	
Estonia	0	0	1	0	1	9	
Latvia	0	0	0	2	2	5	
Malta	0	0	0	0	2	3	Presentation of the Malte-se position
Cyprus	0	0	0	0	0	3	

Legend: P- Personal interviews, T – Telephone interviews, M - e-mail interviews

D.4.3 Overview of the REACH impact studies in the NMS

D.4.3.1 Brief overview of impact studies

The following activities analysing REACH been identified until end of January 2005[15]:

[14] Detailed overview is given in F 3. Annex 3

[15] Study details in table form are given in F 3. Annex 3.

Cyprus:	None
Czech Republic:	Study 1 The impacts of the proposed chemical policy on the manufacturing industry of the Czech Republic (CZ1) Study 2 REACH impact study: REACH economic impact on chemical industry, textile industry, paper industry and automobile industry. Feasibility study for the preparation of REACH Health impact study (CZ2)
Estonia:	Assessment of the impacts of REACH on Estonian chemicals industry
Hungary:	Impact of the New European Chemical Policy on the Hungarian Economy
Latvia:	(Planned) Assessment of the impacts of REACH on Latvian chemicals industry
Lithuania:	The essence of the new registration, evaluation and authorisation system of chemicals (REACH) and envisaged impact on the economy of Lithuania
Malta:	None
Poland:	Study 1 Study on staff requirements in case of REACH implementation (PL2) Study 2 Impact Assessment of the REACH system on the chemical industry (PL1)
Slovakia:	REACH impact on chemical industry in Slovakia
Slovenia:	Impact assessment of REACH on the industry in Slovenia

The assessment of different impacts varied widely between the impact studies, as can be seen in table 2.

Tab .2. An overview of evaluated impacts of the individual studies
(Y –Yes, N – No, data are not available are marked with N/A)
Blue – ongoing study, Red – Report not published)

Evaluated impacts on …	Poland PL1	Poland PL2	Czech CZ1	Czech CZ2	Hungary	Slovakia	Slovenia	Lithuania	Estonia	Latvia	Malta	Cyprus
…cost, prices and margins	Y	Y	Y	N/A	Y	Y	Y	Y	Y	The study is planned	no impact study performed	no impact study performed
…substance withdrawal	N/A	N	N		Y	N	Y	N	N			
…innovation	Y	N	N	N/A	Y	Y	Y	N	N			
…time to market of products	N/A	N	N	N/A	Y	N	N	N	N			
…competitiveness	Y	N	N	N/A	Y	N	Y	N	N			
…protection of private know-how	N/A	N	N	N/A	N	N	N	N	N			
…foreign trade exchange	N/A	N	N	N/A	Y	N	Y	N	N			
…relocation of companies	N/A	N	N	N/A	N	N	N	N	N			
…industry restructuring	N/A	N	N	N/A	Y	N	N	N	N			
…company's product portfolio and revenues	N/A	N	N	N/A	Y	N	Y	N	Y			
…domestic and foreign investments	N/A	N	N	N/A	N	N	N	N	N			
…health and environmental issues (benefits)	N/A	N	N	N/A	Y	N	N	N	N			
OVERALL ASSESSMENT OF THE STUDY	F	N/A	F	N/A	C(?)	F/E	S	F	F	N/A	N/A	N/A

(Assessment codes: C-comprehensive, E-excursive, F-fragmentary, S-sketchy)

D.4.3.2 Detailed overview of the impact studies

Cyprus

According to the Cypriot authorities chemical substances potentially affected by REACH in principle are not produced in Cyprus. However formulations for preparations are imported from the EU as well as outside the EU. The main related industry sectors in Cyprus are: pharmaceutical products, household plastics, paints and varnishes, detergents, cleaning agents, cement and food.

At the moment there are no plans to perform a quantitative impact assessment of REACH on Cypriot industry. It is estimated that industries which import raw chemical materials from outside the EU will be potentially affected.

Czech Republic

Impacts of the proposed chemical policy on the manufacturing industry of the Czech Republic (CZ1)

Objectives

- To compare Czech existing legislative framework on chemicals with the proposal of the REACH Regulation

- To identify key differences between existing legislation and REACH

- To assess the economic impact on the chemical industry: producers and importers[16].

Assumptions

- Registration costs are structured as: costs for the acquisition and preparation of technical documents (Dossier), preparation of the Chemical Safety Report (CSR) and the settlement of the registration fee.

- Estimated testing costs are based on the requirements for the information on properties depending on the tonnage and the price for testing (adopted from pricelists of foreign testing facilities).

- The scope and demands of the Chemical Safety Report especially depend on the potential use of the substance and the demand for exposure scenarios - costs may be derived from the price and the working time spent.

- Costs related to the need of the withdrawal of substances and the development of substitutes is not included.[17]

The estimation of registration costs for manufacturers and importers of chemical substances is based on the following provisions:

- Current frequency and tonnage range of manufactured and imported substances is maintained,

- The registration of these substances is related to the testing of all their properties, which are required as input information for the assessment of the registered substances at individual tonnage levels,

Methodology

The Czech Ministry of the Environment (ME) databases were used for the estimation of cost registration of substances. ME databases identify manufacturers and importers as well as substances and their quantities. The databases include only substances which have already been introduced onto the market in the Czech Republic and those which are subject to notification.
The following substances are not subject to notification:

- Intermediates consumed on the spot or transported between two enterprises,
- Those which are not dangerous,
- Those introduced onto the market in quantities lower or equal to 10 t/a.

Despite all these restrictions, the official ME databases appear to be the most reliable basis for the estimation of the substances number to be register under the REACH system.
The registration costs include:

- Collection of data, dossier elaboration,
- Chemical safety report (CSR),
- Registration fee.

[16] Karel Blaha: Preparation of the Implementation of REACH in the Czech Republic. Seminar: The new chemical legislation REACH Ministry of Industry and Trade. November 4, 2004,

[17] Jiří Burel, Alena Krejčová The REACH system impacts on the industry of the Czech Republic. Ministry of Industry and Trade, 21.05.2004. Extended summary of the study performed by the Research Institute of Organic Synthesis

The registration cost per one substance depends on the production volume and for the Czech Republic it was estimated as shown in the following Tab.3:

Table 3. The registration cost per one substance (exchange rate 1 Euro = 35 CZK)

Volume [t/a]	1-10	10-100	100-1000	>1000
Cost of dossier	0,5 mill CZK 14.200 Euro	4,5 mill CZK 128.000 Euro	10,0 mill CZK 286.000 Euro	30,0 mill CZK 857.000 Euro
Cost of chemical safety report	-	0,15 mill CZK 4.300 Euro	0,3 mill CZK 8.600 Euro	0,5 mill CZK 14.200 Euro
Registration	0,013 mill CZK 370 Euro	0,013 mill CZK 370 Euro	0,26 mill CZK 7.400 Euro	0,26 mill CZK 7.400 Euro
Overall cost of registration per one substance	0,513 mill CZK 14.570 Euro	4,663 mill CZK 132.670 Euro	10,56 mill CZK 302.000 Euro	30,76 mill CZK 878.600 Euro

Source : Oldrich Petira's presentation at the Seminar: The new chemical legislation REACH. Ministry of Industry and Trade, Prague, November 4, 2004 [Petira2004].

Results:
The registration cost for the Czech chemical producers and importers, will range between 1.8 and 5.6 billion CZK (~50 – 160 Mill Euro), out of this:

The registration cost of substances produced by the Czech manufacturers: 1.6 – 5.0 billion CZK (~45 – 140 Mill Euro).

The registration cost of substances imported into the Czech Republic: 0.2 bill. to 0.6 billion CZK (~5 - 20 Mill Euro).

To register the substances produced or imported in lower volumes, the authors of the report propose to use the data derived using the recommended calculation methods QSAR. The costs of data obtained like this may be lower than the actual costs of testing.

As for the forecasted impacts on the Czech chemical industry, the authors claim that the implementation of REACH proposal will cause:

- the increase of raw material prices
- Decrease of competitiveness of chemical products compared to world-wide products
- Relocation of production capabilities outside the EU
- Withdrawal of low-tonnage products.

The cost of elaboration of CSR of unidentified use of one product was estimated to 30 000 – 100 000 CzK (860 – 2850 Euro). The number of such situations could be significant. The overall cost could come up to tens of millions CzK.

Tab. 4. Estimated impact of REACH on the price of products

Volume [Mg/a]	Additional price [CzK/kg]
1-10	500 – 50 (14-1.4EUR)
10-100	466 – 47 (13 – 1.3EUR)
100-1000	106 – 11 (2.8 – 0.3 EUR)
>1000	< 30 (0.85EUR)

The cost has also been estimated for other industries. For instance, the overall cost of REACH implementation in the textile industry was estimated at 115- 215 Million CzK (3.3 – 6.1 Mill Euro).

The direct costs of the REACH implementation in the rubber industry will be lower as there is no need to register polymers which are delivered from the EU, and the substances used in this

sector are produced in high volumes. The indirect costs of the REACH implementation will depend on the increase of the price of raw materials.
There will be no significant changes in the costs of production in the petrochemical industry as petrochemical companies produce substances in high volume. The prices of petrochemical products are highly dependent on crude oil prices.

The increase of costs in the paper industry was estimated at 2.5 billion CzK (70 Mill Euro). There is a risk that 20% of production capacities may disappear as well as 3000 direct jobs and 10 000 indirect jobs in this sector.

Comments
The report assesses REACH impact only with regards to direct costs for the chemical industry. The impact on health, environment, innovation etc. is not analysed. The costs used for calculating of substance registration correspond more or less with the first ADL REACH impact assessment carried out for the VCI and are substantially higher than the values provided by the ECB.

There is one other study under preparation in the Czech Republic. The study looks at economic impacts of REACH on the chemical, textile, paper and automobile industries. It is also planed to serve as a feasibility study for the later preparation of the REACH Health Impact study. The authority responsible for the study is the Ministry of Environment, the Research Institute of Organic Syntheses in Pardubice together with the National Institute of Public Health in Prague. The study will be completed by the end of February 2005. No further details on this study are available.

Estonia

Assessment of the impacts of REACH on Estonian chemicals industry

Objectives
The aim is to illustrate the potential ranges of direct costs at company level and to identify the types of businesses that will be most affected by the REACH regulation.

Assumptions
There will be no quantitative description of the macroeconomic situation in this study. The study will not provide any predictions or estimates about the costs of implementation of the proposal on national level in Estonia.

Methodology
Case study approach - estimating the direct costs (testing and registration costs)of REACH for chemical industry.

Results
The study started in September 2004 and the first part IA of the study is to be finished in March 2005. The results are not available yet – not even provisional results.

Comments
Although the study is not completed yet or not available, it could be assumed that it covers the impact on costs, prices and companies' product portfolios and revenues. In the future, it is planned to continue with impact assessment work, and also to analyse other aspects of impact (like indirect costs etc.) of the REACH regulation.

Hungary

Impact of the new European chemicals policy on the Hungarian economy

The only available source of information were the objectives of the Hungarian study which were disclosed in the Working document 96/04 for REACH Workshop 25-27 in The Hague October 2004. The list below is quoted (with some explanatory addictions) from the above document:

Objectives
Preliminary objectives:

1. *Gather data for tonnage bands, produced and imported*
2. *Find the number of isolated intermediates (used, transported)*
3. *Find the number of substances in preparations (produced, imported)*
4. *Estimate the %age of products with low profit rate and the possibilities of substitution*
5. *Survey records and protocols of classification and labelling by companies and tonnage bands*
6. *Evaluation of whether conditions for classification concerning isolated intermediates are satisfactory (on the spot or in case of those transported)*
7. *Clarify the situation concerning duty of registration for phase-in substances, and the costs related*
8. *Collect the information on new substances*
9. *Make clear presumed difficulties related to the most problematic substances (carcinogens, mutagens, endocrine disrupters etc.)*

Ministry of Economy and Transport expressed four further objectives:

1. *Estimate the level of the predictable extra costs and the extent of possible decrease in profit*
2. *Assess presumable impact of the regulation on goods concerning a given company*
3. *Assess impact of the regulation on the competitiveness of a company on non-EU markets*
4. *Assess economic impacts for substances possibly phased out from production or import concerning a given company.*

Ministry of Environment and Water defined the following objectives:

1. *Listing of critical, the most dangerous or hazardous substances*
2. *Possibilities for introduction of less hazardous substances, and for substitution*
3. *Detection of possible relationship between introduction of REACH and pollution emission levels (in relation to the IPPC and the WFD directives)*
4. *Justification for development of labour safety and the reduction of exposures at work.*

Assumptions admitted

1. REACH implementation causes high costs that need thorough investigation

2. The chemical industry will be the most affected

3. Impact on downstream users will not be so high

4. Some inconvenient substances/preparations will be withdrawn and replaced by more suitable substances/preparations

5. Registration authorities should be restructured.

6. Competencies of the Ministry of Economy and the Ministry of Environment will be changed.

Methodology
As seen from the above list of objectives, the study should be a concerted action of several Ministries which may lead to the use of a more differentiated methodology and more balanced results.

The study will comprise a two-stage assessment:

1. A survey on the basis of detailed questionnaires for industrial companies and authorities responsible for the REACH implementation
2. Personal interviews on the basis of the first results of the evaluation of the responses to the questionnaire.

The Association of The Hungarian Chemical Manufacturers and the Association of The Hungarian Pharmaceutical Industry are taking part in the elaboration of the report as subcontractors. Their task is to pass questionnaires to chemical and pharmaceutical companies. Among the industrial enterprises interviewed there are:

- 5 large producing companies
- 5 medium-sized companies
- refinery companies

The National Institute of Chemical Safety is the interviewing authority.

Results

The results are not yet known, as the study has not been completed yet. Expected results have been expressed in presentations and interviews carried out with the Hungarian authorities.

1. Large companies producing a small variety of substances and preparations but in high quantities will be positively affected due to improved information availability for their substances and better occupational health provisions.
2. The most affected will be companies producing low volume of substances but in a big variety.
3. Numerous SMEs will have to change their production profile to remain in business.
4. There will be a positive influence on environment.
5. Better recognition of produced chemical substances and preparations.

The total number of chemicals subject to REACH is estimated to be less than a thousand (excluding repeated reporting of the same substance). The companies producing a variety of chemicals each at low volumes will be impacted most negatively. The benefits of the REACH in terms of protection of health and the environment will surely outweigh the direct costs[18]. Moreover it turns out that:

- Even many Hungarian SMEs often use more than 100 substances, which fall into the scope of REACH. It may bring too much burden on SMEs.
- Almost all substances are used in volumes over 10 t/year
- Most substances can be substituted
- REACH will decrease the overall competitive position of the Hungarian chemical industry sector
- Companies forecast an average cost increase of 10-25 % and a 20-30% decrease in profits.

[18] Interview with Ms. Galvogyi

Comments
The study includes the assessment of the REACH impact on health and the environment as well as on innovation, time to market of products, competitiveness, foreign trade exchange, industry restructuring and so on. However as the study is not available, this information could not be verified. Nevertheless, this study seems to be the most complex of all studies performed in NMS.

Latvia

Planned study: Assessment of the impacts of REACH on the Latvian chemicals industry

Preliminary objectives
1. Business impact assessment
2. To assess workers protection in chemical industry.
3. To assess the impact on the environment as a whole.

Assumptions
There will be a significant impact on the industry in the first phase of REACH implementation. The protection of workers and of the environment will increase[19].

Methodology
Methodology will depend on experts involved in the study.

Results
Not available yet.

Comments
Due to the lack of resources the study of the REACH impact has not been performed yet. However, the Latvian Environmental Agency has applied to Environmental Protection Fund of Latvia to acquire funds for the project, including the REACH impact study.
The study will start in February and the first results are estimated to be known by October 2005.

Lithuania

The essence of the new registration, evaluation and authorisation system of chemicals (REACH) and envisaged impact on the economy of Lithuania.

As the findings of this study and the study itself is regarded as confidential information by the Lithuanian authorities, the main source of information on its objectives, methodology and results is the Working document 84/04 for REACH Workshop 25-27 October 2004 held in The Hague, supplemented by several interviews.

Objectives
- To prepare information on REACH for the Lithuanian end users
- To detect sensible industry areas which would be affected by the REACH system[20]
- To establish databases on import and export of chemical substances
- To estimate tendencies of chemical import structure[21]

[19] Interview with Mr. Arnis Ludborzs - Latvian Environmental Agency, Chemical Register; interview conducted on 17th December 2004 in Riga

[20] Working document 84/04 for REACH Workshop 25-27 October 2004, the Hague

[21] Interview with Mr. Mazunaitis

Methodology[22]
The methodology applied is based on the identification of chemicals and the estimation of the registration costs. In order to avoid purely mechanistic multiplication of testing costs per substance and to provide comparable data it is expected to extend this approach with the methodology used in the ongoing REACH impact assessments supported by the Commission.

Results[23]
"Over 80% of the total amounts of chemicals produced in the country are basic chemicals (fertilizers). There is no significant specialized chemicals production in Lithuania. Data collection and the administration of imported preparations in the companies require significant resources as well as high quality safety data sheets (SDS), which are not always obtainable."

"17 chemicals have been identified, produced by the local manufacturers or imported from outside the EU in the amounts exceeding 1000 t/y for domestic production, and they will be affected by the first route of the registration. Most of these substances are well known. In some cases the chemicals are raw materials for manufacture of fertilizers and plastics (aromatics, glycols). It is, however, difficult to estimate direct impact of the legislation since the cost sharing in consortia will decrease the costs considerably for often used chemicals. There is lack of information on the available test data, which fulfil quality requirements under REACH. Otherwise the registration costs per substance over 1000 t are extremely high and can lead to reconsidering investments."

"The most of speciality chemicals are being imported from the EU member countries, but it could be also found that speciality chemicals are imported from the non-EU countries (e.g. Switzerland) in textile industry, the CMR's, the chromium (VI) compounds for metal finishing (CIS countries). The substitution of imported non-EU chemicals in textile sector, as well as more detailed study of chemical preparations in the building materials is under consideration."

Comments
According to the terms of reference, the Lithuanian report is an initial assessment of potential impacts and risks, and the study neither scrutinises the effects in deep nor goes as far as inter-sector impact.

Interviews held at the Baltic Environmental Forum in Riga in Dec. 2004 indicate that there is little demand for a report like this among Lithuanian stakeholders. One reason for that may be absence of a strong private chemical SME sector in Lithuania, which –as in Poland or the Czech Republic - might feel jeopardised by the costs of the registration of substances.

Malta

There is no study on REACH impact in Malta, indeed, there is no information about plans to carry out such a study.

Poland

Study 1
Report on staff requirements to implement REACH (PL1)

This is the only study currently available which assesses impacts of REACH in Poland, which represents more than 40% of the NMS chemicals sector. This study focuses exclusively on additional staff requirements and does not address the question of direct costs for the chemical sector.

[22] Taken from Working document 84/04 for REACH Workshop 25-27 October 2004 held in The Hague

[23] Taken from Working document 84/04 for REACH Workshop 25-27 October 2004 held in The Hague

Objectives
To estimate the additional staff requirements for enterprises, national authorities, and control agencies to implement REACH.

Methodology
Case study approach

Assumptions
- The implementation of REACH may cause a substantial financial as well as an additional staffing burden on the Polish economy.
- Small and medium enterprises will charge all tasks regarding the chemical safety and CSR elaboration to the research institutes and consulting companies.
- The cost of each additional employee is 6000 PLN (~1500 Euro) per month.
- The associated operational costs are as high as labour costs.
- The costs of additional personnel for authorities and control agencies will be fully covered by the national budget.
- Staff requirements for the enterprises will be 5 times higher than for authorities, certification and control agencies.

Additionally it was assumed that all EU member states have to establish a dedicated national authority responsible for the tasks defined in the REACH proposal. They also have to provide sufficient resources i.a. personnel for this authority[24].

Results
1. Staff requirements for state agencies and government.

It will be necessary to employ up to 85 qualified personnel in each of the public administration and governmental institutions and to ensure their proper training on REACH.
The control duties could be charged to existing control agencies, however the personnel in these agencies are not prepared to fulfil the REACH requirements. Therefore it will be necessary to train several hundred people for control agencies while the trainers should be fully trained first.

2. Staff requirements for enterprises

It will be necessary to additionally employ up to people to cope with REACH at a company level.[25].

3. Personnel cost for national authority and control agencies per year (total 315 additional staff):[26]

- Inspection for Environmental Protection (50 add. staff): 7. 2 million PLN (1.8 Mill Euro)
- Trade Inspection (50 add. staff): 7.2 million PLN (1.8 Mill Euro)
- Labour Inspection (50 add. staff): 7.2 million PLN (1.8 Mill Euro)
- National authority (50 add. staff): 7.2 million PLN (1.8 Mill Euro)
- Sanitary Inspection (85 add. staff): 12.24 million PLN (3.06 Mill Euro)
- Customs control (30 add. staff): 4.32 million PLN (1.08 Mill Euro)

Overall personnel costs for the state authorities and control agencies in Poland will be 45.36 million PLN per year (EUR 11.5 million at the present exchange rate).

[24] Konieczko2003

[25] Konieczko2003

[26] Baranski 2004. Calculation as follows: (staff * 6000 PLN salary * 12 months)*2 for operational costs, in total around 3000 Euro/personmonth.

Cost of additional personnel for the enterprises (5*315=1575) is 226.8 million PLN [ca. EUR 57.5 million] per year after the registration process is finished. Overall additional REACH 'maintenance' costs were thus estimated to EUR 69 million/year.

Comments
The study is based on approximate assumptions and it covers the additional personnel demands in state agencies and enterprises imposed by the REACH implementation and their estimated costs. The study is not concerned with all the other personnel costs and impacts, such as additional employment in non-governmental institutions, costs of advising the entrepreneurs to be borne by PARP, costs of employing additional personnel in Community-level agencies, which will be borne by Member States. On the other hand, the assumed man-hour cost may be underestimated as experts' salaries increase faster than the average salary.

A surprising outcome of the report is the amount of 69 Million Euro/year staff cost resulting from REACH implementation, which is considerably higher than the cost for testing and registration as calculated in the second Polish impact assessment (see below). Here the overall direct cost is said to range between 340 and 600 Million Euro, which for the 11 year phase in period results in costs of 31-55 Million Euro/year.

Study 2
Impact assessment of the REACH system on chemical industry (PL2)

This study is currently not accessible. The preliminary results have been presented several times in different occasions, but a report allowing the detailed assessment of underlying assumptions and methodologies is not available until today.

Objectives:
'To contribute to build the institutional capacity for the implementation of REACH. Preparation for the implementation of REACH of the following groups:

- *Central Authorities (Bureau for Chemical Substances and Preparations)*
- *Enforcement Authorities (Sanitary Inspectorate)*
- *Polish Industry (chemical, automobile, construction etc.)*
- *Educational institutions*

To build the inter-sectoral platform of co-operation for REACH (including all major stakeholders)"[27]

'To assess consequences of implementation of the new EU chemicals legislation in the Polish chemical industry"[28].

Methodology
The study of the impact assessment of the REACH system on the Polish chemical industry sector is based on two questionnaires:

Part I - Questionnaires were drawn up and distributed among the chemical companies and industrial associations. About 180 companies received the questionnaire, but only 23 companies submitted a complete response. The companies that did not respond or responded incompletely were questioned directly; the final number of companies included in the study was not mentioned.

[27] Presentation of Wieleżyński, Krześlak and Tulińska, Warsaw, February 2004

[28] Working Document 99/04 of the REACH Workshop the Hague 25 - 27 October 2004

Part II – About 1600 questionnaires were sent to chemicals companies including SME-s and downstream users. Feedback – according to the Ministry's Head of Department about 80 questionnaires were received from industrial companies.[29]

'All queried companies were asked to disclose:
Purchase value of raw materials or sales value of products individually on the case-by-case basis,
Tonnage band according to the provisions of REACH regulation draft,
Number of employees split for relevant installations.
Each chemical at the company site was analysed on the case-by-case principle. Raw materials were divided in three categories:
Purchased outside the EU,
Purchased in the EU (25 Member States),
As semi-final products (by-products) as a result of the company's production
Only share of cost resulted directly from REACH in sales or purchase values were taken into account (without cost of rent and rates, energy, maintenance, service, etc.). Influence on other industry sectors was not included.'

The brief characterisation above of the reports' methodology is quoted from the Working Document 99/04 of the REACH Workshop in The Hague last October. According to the authors and industry interviews, data published in the European Chemical News (February 2002) were used to calculate the costs of tests.

Results

- More than 700 chemicals produced or used in the surveyed companies were considered in the study;
- The surveyed companies employ more than 20 000 people (ca. 7% of the whole chemical sector in Poland in terms of employment) and operate with annual turnover of above 1.6 billion EUR;
- 59 substances were identified as existing substances from the priority lists;
- 232 substances are listed in Appendix I of Directive 67/548/EEC,
- 189 substances as „existing" listed on EINECS;
- 239 substances exempted from registration as polymers or as substances mentioned in Annex II or Annex III of the REACH regulation draft of 29 October 2003;
- It was estimated that registration under the REACH system will cover ca. 5000 substances; ca. 1000 substances will be subject of testing and ca. 200 will fall under authorisation procedure;
- Total costs are estimated in the range of 340 – 600 million EUR (however taking into account other sources of information – for example DOW EUROPE S.A., VCI data or Procter & Gamble, these costs may be even 5 times higher);
- In some large chemical companies ca. 5 – 10% of employees may lose jobs resulting from shut-down or loss of profitability of plants;
- In the case of small enterprises (in particular when production profile is not diversified) the companies as a whole may be shut-down;
- In some cases an increase of production costs of some chemicals may amount from a few dozen up to several hundred %.
- Taking into account DOW Europe's results of a similar study – the costs of tests may increase to:

    - for substances > 1000 tones / year – up to 1 760 000 EUR,
    - for substances 100 – 1000 tones / year – up to 840 000 EUR.

The latter figures are cited from the Working Document 99/04, REACH Workshop The Hague 25 - 27 October 2004.

[29] Interview with Mr. Miklaszewski

Comments
The first part of the REACH impact assessment study contains only preliminary results based on 23 completed questionnaires. These preliminary findings need to be thoroughly verified using the data from a larger number of enterprises, including SMEs and downstream users from other sectors affected, such as pharmaceutical, electronic, textile, automotive, leather industries etc. The study is an estimation of only direct costs of registration of substances, but not an extended impact assessment. The basis for the calculation of these costs is not available.

It seems that these drawbacks will be taken into account while elaborating on the follow-up report. There is no information on the character and scope of this study, although the number of received replies is almost four times as big as in case of the first part of the study and the report itself was described as 'a revised impact assessment' by its authors. Furthermore, according to the authors (cf. their presentation[30]), the report will include impacts on innovation and competitiveness as well as the adjustment costs of Polish laboratories to the GLP requirements.
According to the Polish Agency for Entrepreneurship Development (PARP), which is a subordinated body of the Ministry of Economy (owner of both reports) one can conclude that neither of the reports contains an analysis of the SME sector, nor was such analysis ordered by the Agency[31].

The assessment of potential benefits of REACH, such as reduced employers' expenses due to a positive impact on their employees' health and the environment, is not envisaged in any of the reports. The simplified economic impact analysis has not followed the methodology used in RPA and other impact studies.

Slovakia

REACH impact on chemical industry in the Slovak Republic

The REACH impact study was completed and made available just several days before submitting this report. However, the preliminary information gathered during personal and phone interviews with the Slovak authorities and research institutions could be confirmed after comparing them with the scope, methodology and findings of the full version.

Objectives
The aim of the study is to analyse the impact of REACH proposal on the key domestic industrial sectors (chemical industry as well as important sectors of downstream users), taking into consideration the health and environmental aspects[32]*.*

According to the Slovak Ministry of Economy, the study has had the following detailed objectives:[33]

1. To inform industrial companies and enterprises of the new regulatory framework (REACH)
2. To gather information on the chemical industry: types and quantities of substances being produced
3. To establish statistical data on chemicals produced in smaller quantities than 10 t p.a.
4. To estimate the direct cost of the REACH on the chemical industry
5. To estimate the direct cost of REACH on selected industrial sectors
6. To asses the impact of REACH on competitiveness, innovation, efficiency and employment in analysed sectors.

[30] Wojciech Lubiewa-Wieleżyński**,** Andrzej Krześlak, Marcela Palczewska-Tulińska: Polish Chemical Industry vs. REACH Meeting on REACH organized by the American Chamber of Commerce in Poland. 26 November 2004, Warsaw

[31] Interview with Ms. Pęciak

[32] Working Document 58/04. Ad-hoc Working Party on Chemicals. Brussels, dated 5 August 2004

[33] Interview with Ms. Zajacova

Assumptions
The study is considered a pilot study on the REACH impact in Slovakia. It is the basis for more detailed studies performed by specific branches of industry: chemical, metallurgy, textile, plastic, paper, and rubber industry.

Detailed assumptions regarding direct costs of registration:

1. For all substances produced in volumes higher that 1 ton per year a dossier should be prepared.
2. For substances produced in volumes higher than 10 to per year CSR should be elaborated.
3. CSR is a complex and large document whose preparation requires the expert knowledge of a specialist consultant. CSR preparation for one substance costs about 150 – 250 thousand SKK (3950-6580 Euro), depending on the volume, in which the substance is produced.
4. Registration fees per one substance range from 20 to 150 thousand SKK (530-3950 Euro), depending on the volume.
5. Test costs of produced substances rely on the current prices at the Slovak laboratories.
6. It will be not possible to carry out all kinds of tests in the Slovak Republic as well as it will be not possible to obtain all the existing laboratory test results (literature data).
7. Test costs of imported substances depend on volume and it varies from 190 to 1450 thousand SKK (5000 – 38000 Euro).

Methodology
The questionnaire, which covered 34 points, was sent to:

- The largest chemical industry companies (employment > 250), and to plants from other sectors of industry: i.e. metallurgy, rubber, pulp and paper industry.
- Medium sized enterprises (employment between 50 and 250)
- Small enterprises (employment <50).

Altogether questionnaires were sent to 95 companies, including the country's largest 10: 6 chemical companies and 4 ones representing other industrial sectors.

47 responses were received, specifically:

- 100% largest producing companies completed the questionnaires,
- 30-40 % of medium sized enterprises responded,
- very few of small enterprises responded.

For an estimation of the direct costs of registration in other sectors of industry the largest enterprises were chosen from rubber, metallurgy and paper industry.

Results[34]
A. Results concerning the number of substances and the corresponding registration costs:

1. In the Slovak Republic about 730 chemical substances that need registration are being produced.
2. The overall costs of registration for the 730 substances produced in Slovakia are estimated as 600 million – 1 billion SKK (16 – 26 Mill Euro, 22000 - 35600 Euro/substance)
3. About 6560 substances are imported to Slovak market.
4. Overall costs of registration of 6560 imported substances are estimated as 4.5 – 8.3 billion SKK (120 – 220 Mill Euro, 18000 - 33500 Euro/substance).

[34] Exchange rate in the following: 1 Euro = 38 SKK, 21 February 2005

5. About 10% of produced and imported substances will require authorisation.
6. Costs of authorization of 700 substances will be 2.5 billion SKK (65 Mill Euro, 93000 Euro/substance)
7. For the Slovak chemical industry the overall direct costs of REACH implementation will be about 12.6 – 20.8 billion SKK (330 – 530 Mill Euro).
8. For selected DU sectors the direst costs of registration will be the following:

    - Enterprises in the rubber sector - 100 million SKK (2.6 Mill Euro)
    - Enterprises in the paper industry – 30-40 million SKK (0.8 – 1 Mill Euro)
    - Enterprises in the metallurgy industry - 90-100 million SKK (2.3 – 2.6 Mill Euro).

B. General results of the study:

1. There are rapid changes of legislation in Slovakia and not enough information on the new regulatory framework REACH. The number of training programmes, conferences and workshops on REACH is insufficient.
2. There is no data sharing in the supply chain.
3. There is general concern that the competitiveness of Slovakian enterprises will decrease because of the duty of data sharing.
4. The heaviest burden will be on SMEs (50 to 150 employees). There are lots of small and medium enterprises which produce a wide variety of substances in volumes of 10 to 100 ton per year.
5. It is predicted that some of the hazardous substances will be replaced by less hazardous ones and this will cause an increase in innovativeness in the enterprises.

Comments
According to the Working Document 58/04 of the Ad-hoc Working Party on Chemicals - Impact Assessment study – Slovakia, the Slovak study includes the assessment of the impact of REACH on competitiveness, innovation, efficiency and employment in sectors under review. However the study, which is available on the Ministry's of Economy website[35] estimates only the direct cost of registration in the chemical industry. In other sectors of industry such as rubber, pulp and paper, metallurgy only one large enterprise per sector was chosen. The registration costs were calculated just for those selected companies.
In the published report there is no clear information about the methodology used for calculations. The methodology could only be reconstructed from the questionnaires used as underlying assumptions.

Slovenia

Impact assessment of REACH on the industry in Slovenia

The description below does not refer to a regular IA of REACH on the Slovenian industry, as no such study is available, but to a short introductory report[36].

Objectives:
1. To provide a first rough estimate of the costs of registration under the REACH requirements for chemical industry and downstream users in Slovenia.
2. Assuring the competitiveness of primarily the pharmaceutical industry and heavy chemistry after the EU accession.

[35] http://www.economy.gov.sk/index/go.php?id=89

[36] Furlan (2004)

Assumptions
The cost of registration was estimated under the following assumptions:

1. One substance – one registration.
2. Polymers would not have to be registered.
3. Non isolated intermediates are exempted from registration.
4. The cost of registration per substances amounts to 300.000 Euro. However, domestic producers can reduce registration cost through consortia to 150.000 Euro per substance.
5. Registration for imported substances is calculated with the full amount of 300.000 Euro.

Methodology
The assessment of REACH on Slovenian industry is done for manufacturers/importers of substances, for preparation makers and for downstream users by multiplication of regisration cost with substance numbers. As the impact on the latter group of companies is difficult to quantify, it is only dealt with qualitatively in the report.

Results
The estimated impact on producers of substances:

- Direct cost of registration for 40 substances produced in Slovenia - 6,000,000 EUR
- The implementation of REACH will threaten 150 jobs in chemicals production.

Impact on producers of preparations:

- Direct cost of registration for 30 imported substances - 9,000,000 EUR
- Substance producers will tend to include the cost of registration in the price of products, it will cause a price increase of raw materials.
- Producers will tend to pre-formulate their products. Certain components will be replaced by others already registered. It will cause an increase of development cost. Quantitative estimation of this cost is not possible.
- Phasing-out substances production or shutdown activities will threaten 500 jobs in the Slovenian chemical industry.

Impact on users of substances and preparations

- Chemical products are used in various industries however the most affected will be the textile, plastics and rubber industries and producers of components for the electronics industry.
- One fear is that the raw material and development costs will increase as a response to the substances' substitution needs and trends. This impact cannot be quantitatively estimated yet.

Comments

The Slovenian document is an estimation carried out under simplified assumptions. The author attempts to assess the impact on cost, prices, substance withdrawal, company's product portfolios and revenues, industry restructuring and innovation. However, the final results concentrate on direct costs of registration and jobs under threat. The impact on innovation, substance withdrawal, company's product portfolios and industry restructuring are of a general nature, stating that there would probably be an impact.

D.4.4 Conclusions

This section provides a comparative overview of the REACH impact studies based on information gathered to date. It is important to keep in mind that the analyses presented in this report are based on the fragmentary information only.

Objectives of the studies

1. Apart from one exception, all reports aimed at estimating the direct costs of REACH for the industry based on the number of substances to be registered, production or import volumes, and on their registration costs.

2. One report (Polish Ministry's of Health) was concerned with estimating the additional employment in state institutions and private industry and its costs. Specific but sometimes ad hoc assumptions regarding the additional workload necessary were made.

3. The benefits of REACH such as impact on health and environment and quality of life are almost entirely neglected and not included in the studies available so far.

4. An exception seems to be the ongoing Hungarian study, which would include the impact on health and the environment, however it was not possible to confirm that fact as the Hungarian study is not currently available.

Methodologies of the studies

1. All studies concentrate on the chemical industry.

2. Downstream users such as textile, rubber, automotive industries are only marginally considered in two cases, the Slovak study and the ongoing Hungarian study.

3. OSOR was assumed by most reports' authors and interviewees.

4. In Poland, the Czech Republic and Slovakia the impact studies are (or are planned to be) elaborated as two-stage exercises. Reports produced in the first phase are intended to be the basis for the second-stage studies.

5. A common approach is the use of questionnaires. The questionnaires as the main element of methodology were used in Poland, Slovakia, and Hungary. Questionnaires were first of all sent to to chemical companies, but also to authorities, research institutions etc.

6. Some of the questionnaires in NMS are based on other countries' experiences - for example the Slovak approach is based on a Swedish report.

7. In Hungary two different questionnaires were prepared for industrial companies and for authorities (governmental agencies).

8. Overall methodologies of impact studies are often based on the other countries' experiences (e.g. Estonia benefits from German experience, Latvia is going to hire Scandinavian experts to assess the REACH impact).

9. The cost of registration and tests were estimated using the methods taken from earlier reports, or those described by the European Chemicals Bureau, or published by the European Chemical News, or even "ad hoc" estimated. As a result, the cost calculation for registration per substance differs substantially between countries. No novel methodology could be discovered in reports available so far.

10. The approach used in the Czech Republic was based on an intensive use of databases on chemical substances which belong to the Ministry of Environment. An estimation of the registration costs was assessed on the basis of this database.

11. In Estonia and Lithuania the studies were based on case study approach.

12. The REACH cost estimation in Slovenia was a rough approximation.

Findings of the studies

1. Some of the analyzed impact studies make their calculation basis explicit:

   Czech Republic
   For substances 1 – 10 tonnes/year: 14.570 Euro
   For substances 10 – 100 tonnes/year: 132.670 Euro
   For substances 100 – 1000 tonnes/year: 302.000 Euro
   For substances >1000 tonnes/year: 878.600 Euro

   Poland
   Not explicit, maximum numbers given from DOW impact assessment:
   For substances > 1000 tonnes/year – up to 1.760.000 Euro,
   For substances 100 – 1000 tonnes/year – up to 840.000 Euro.

   Slovenia
   For all substances 300.000 Euro

   Slovakia
   For domestic produced substances 22.000 – 35.600 Euro
   For imported substances 18.000 – 33.500 Euro

2. On the basis of different cost basis as shown above, the reports come up with different overall cost impacts for the respective countries:

Tab.5. Overall direct cost according to IA carried out in selected NMS

Country	Total cost (Million Euro)	Annual cost (Million Euro)
Czech Republic	50 – 160	4.5 – 14.5
Poland (Direct cost)	340 - 600	31 – 55
Poland (Staff cost)		69
Slovakia	330 - 530	30 – 48
Slovenia	15	1.3

3. The study carried out in Poland on staff requirements to implementa REACH is difficult to assess, as most of the assumptions, such as the calculation basis resulting in 100 additional staff in public authorities and the need of 5 time more employees dedicated to REACH in companies, are difficult to verify. Moreover, average salaries taken as a basis for calculation (6000 PLN = 1500 Euro) seem to be over average as compared to results from interviews carried out in chemical companies (average wage: 12 PLN/h = ~2100 PLN/month = 525 Euro).

4. Although different methodologies, assumptions and cost basis are used, some results which are common in all REACH IAs in NMS are that

   a. The large chemical companies could cope with the REACH requirements
   b. The heaviest burden will be on SMEs which cannot consistently fulfil the REACH requirements and so it is predicted that most of them may face financial troubles, may be taken over by bigger ones or even shut down.

General considerations:

1. The activities to analyze the REACH impact on industry vary widely among the NMS:

2. Activities to assess the REACH impact on industry are more developed in Poland, the Czech Republic and Hungary.

3. In Poland and in the Czech Republic the studies on the REACH impact were initiated much earlier than in the other NMS.

4. A common feature concerning almost all the reports available is the lack of profound economic analysis, especially the lack of multi-step impact analysis and sector synergies in the economy. Benefits like e.g. acquiring new markets with safer and 'healthier' products are not evaluated in the reports available. The reports are rather static, and the technology substitution, which will be triggered by the implementation of REACH, is not taken into account. The reportsin general emphasize potential threats to the industry and to the labour market while neglecting the potential advantages, which should be a consequence of eliminating certain dangerous substances, such as less spending on Medicare programmes for their personnel, cheaper safety measures etc.

5. The large difference between the individual calculations and subsequent results indicates a large extent of insecurity in the NMS with regards to the costs induced by testing and registration under REACH. In some cases the figures are well above broadly accepted costs. Since they were the main information source for companies in the respective countries, serious worries in those companies become understandable which tried to assess on this basis the impact of REACH on their product portfolio. This has been confirmed in interviews carried out.

6. The 2003' public consultations and the recent questionnaire mailings in the course of some of the impact studies have increased the REACH awareness in industry, starting from the largest and most affected specialty chemicals companies, through the remaining members of the chemical industry associations (which in NMS have only few SME members), reaching finally the SME sector; however the awareness of REACH in SMEs is still very limited.

7. In most of the NMS the authorities responsible for the impact study are the Ministries of the Economy. These Ministries usually launch the studies. In case of Hungary the Ministry of Environment plays an important role as well. In Poland, the Ministry of Health ordered a separate report with a restricted and specific scope.

8. The studies are carried out by chemical research institutes or consulting companies with the strong involvement of industrial associations.

9. A general conclusion from all NMS IA studies is that the impact of REACH on these countries needs more complex estimations. Some countries follow-up reports are planned to estimate the impact more thoroughly (Poland, Czech Republic, Slovakia).

10. Substitution of substances is only considered in the Czech and Polish reports.

E. BIBLIOGRAPHY

1. European Business – Facts and Figures, EUROSTAT, 2004 edition
2. Progress towards meeting economic criteria for accession: the assessment from the 2003 comprehensive monitoring reports and regular report, DG ECFIN, 2003
3. EUROSTAT Statistics, January, 2005
4. http://www.cefic.be/, CEFIC, 2004.
5. The Economic situation in Poland, http://www.pipc.org.pl/ang1.htm, PIPC, 2004
6. The chemical industry in the EU, Statistics in focus – Industry, trade and service, EUROSTAT, 2004
7. Directorate-General for Information, Task Force Enlargement, Briefing Paper No22: Statistical Annex, 2004
8. Interview, information exchange, and personal communication with industrial associations in Hungary, the Czech Republic, Slovenia, Slovakia, Estonia, and Poland.
9. Frank Ackerman and Rachel Massey: The True Costs of REACH. Global Development and Environment Institute, Tufts University A study performed for the Nordic Council of Ministers TemaNord 2004.
10. Jiří Burel Ing., Ing. Alena Krejčová The REACH system impacts on the industry of the Czech Republik. Ministry of Industry and Trade, 21.05.2004. http://www.mpo.cz/scripts/modules/dmsdoc/document.php?lid=3&id=10625.
11. Joan Canton and Ch. Allen. A Microeconomic Model to Assess the Economic Impacts of the EU's New Chemicals Policy. DG Enterprise. November 2003
12. Consumers' risks from hazardous substances - public information and awareness raising. Overview of the Baltic and other EU non-governmental organisations: their roles and activities to inform consumers on chemicals-related issues Baltic Environmental Forum November 2004
13. Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency and amending Directive 1999/45/EC and Regulation (EC) {on Persistent Organic Pollutants} Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Council Directive 67/548/EEC in order to adapt it to Regulation (EC) of the European Parliament and of the Council concerning the registration, evaluation, authorisation and restriction of chemicals (presented by the Commission) {SEC(2003 1171} COMMISSION OF THE EUROPEAN COMMUNITIES Brussels, 29.10.2003 COM(2003) 644 final 2003/0256(COD), 2003/0257(COD)
14. EXTENDED IMPACT ASSESSMENT. Commission staff working paper. Commission of the European Communities Brussels, 29/10/2003 Sec (2003) 1171/3 Regulation of the European Parliament and of the Council Concerning the registration, evaluation, authorisation and restrictions of chemicals (reach), establishing a European Chemicals Agency and amending Directive 1999/45/ec and Regulation (EC) {on persistent organic pollutants} " {com(2003)644 final}
15. Krześlak A., Palczewska – Tulińska M.: The effects of Implementation of REACH for Polish Chemical Industry Firms. Chemik 6-7/2004 pages 211-218
16. Lubiewa-Wieleżyński W., Krześlak A.: REACH System- Activities in Europe and Schedule for Necessary Activities In Poland. Chemik 6-7/2004 pages 205-210
17. Opinion on staff requirements in case of REACH implementation. Inspectorate for Chemical substances and Preparations, Institute of Occupational Medicine, Łódź, October, 2003.
18. Report - Round table of Baltic State authorities on REACH Baltic Environmental Forum
    3 June, 2004, Jurmala, Latvia
19. Final report - How it came to REACH and what stands behind. Baltic Environmental Forum. 20 - 21 January 2004, Jūrmala
20. Image of the Chemical Industry 2004. CEFIC Pan European Survey PES 2004.
21. Malta Business Bureau European Monthly Newsletter. May 2004

22. EU2004REACH - The impact of REACH. Overview of 36 studies on the impact of the new EU chemicals policy (REACH) on society and business. ECORYS, OpdenKamp Adviesgroep. Workshop REACH Impact Assessment, 25th - 27th October 2004, the Hague, the Netherlands.
23. The Impact of the New Chemicals Policy on Health and the Environment Final Report Prepared for the European Commission Environment Directorate-General. RPA and BRE Environment. June, 2003.
24. REACH: Impact on Innovation. European Commission Directorate General Joint Research Centre. Brussels, 21 November 2003
25. Assessment of the Impact of the New Chemicals Policy on Occupational Health. Final Report prepared for European Commission Environment Directorate-General. RPA, March 2003
26. Revised business impact assessment for the consultation document. Working Paper 4 Assessment of the Business Impacts of New Regulations in the Chemicals Sector Phase 2. Prepared for European Commission Enterprise Directorate-General RPA October 2003
27. Feasibility study on the resource requirements for a Central Entity. FINAL REPORT. Deloitte & Touche, June 2002 Ref. B4-3040/2001/329289/MAR/C3
28. Hubert Mandery: Challenges for a balanced chemicals policy. ChemCon 2004 6th May Session 11
29. Finn Pedersen, Jack de Bruijn: Assessment of additional testing needs under REACH. Effects of (Q)SARS, risk based testing and voluntary industry initiatives. Sharon Munn & Kees van Leeuwen September 2003. European Commission Directorate General Joint Research Centre. Institute for Health and Consumer Protection.
30. Study of the impact of the future chemicals policy 4 examples of the impacts of the regulation proposal on downstream industries. Mercer Management Company. April 2004
31. Katrin Ostertag Frank Marscheider-Weidemann Gerhard Angerer Andreas Ahrens Ute Meyer. Analysis of the costs and benefits of the New EU chemicals Policy. An examination based on selected sectors taking into account effects on competitiveness, innovation, environment, and health. Fraunhofer-Institute for Systems and Innovation Research ISI. Oekopol GmbH, Institute for Environmental Strategies. Hamburg, October 2004.
32. Petr Sauer, Antonín Dvorák, Petr Fiala, *Negotiation between Authority and Polluters - Model for Support of Decision Making in Environmental Policy: Principles and Experimental Case Test*. Paper presented at World Congress of Environmental and Resource Economists, Venice, Italy, Isola di San Giorgio, June 25-27, 1998).
33. Strategic Partnership on REACH Testing (SPORT). CEFIC, July 2004 www.cefic.be/files/Publications/SPORT_040702.doc
34. CEFIC (European Chemical Industry Council) (2004): *Chemical Industry* 2015. *Roads to the Future.* Brussels 2004,
35. CEFIC (European Chemical Industry Council) (2005): **Economic Time Series**, http://www.cefic.org/factsandfigures/level02/append_index.html
36. CMIT (Czech Ministry of Industry and Trade) (2003): *Panorama of the Czech Industry* 2002, Prague 2003, download: http://www.mpo.cz/xqw/webdav/-UTF8-/dms_mpo/getFileinternet/11528/8878/PANANGL.PDF
37. CMIT (Czech Ministry of Industry and Trade) (2004): *Panorama of the Czech Industry* 2003, Prague 2004, download: http://www.mpo.cz/xqw/webdav/-UTF8-/dms_mpo/getFileinternet/18767/19274/panorama_en.zip
38. DG Entreprise (2000): *Competitiveness of the Chemical Industry Sector in the CEE Candidate Countries*, report prepared for the European Commission, DG Entreprise, under contract PRS/98/501703, Part B, October 2000
39. EKTL (Estonian Association of Chemical Industry) (2005): 'Characterisation of the chemical industry in Estonia', interview with EKTL members, 17th March, 2005
40. EUROSTAT (Statistical Office of the European Community) (2005): 'Industrie, Handel und Dienstleistungen', http://europa.eu.int/comm/eurostat/

41. Fraunhofer (Fraunhofer Institute or Systems and Innovation Research and Oekopol GmbH) (2004): Analysis of the costs and benefits of the new EU chemicals policy. An examination based on selected sectors taking into account effects on competitiveness, innovation, environment and health. Federal Environmental Agency. Berlin, October 2004
42. GZS (Chamber of Commerce and Industry of Slovenia. Chemical Industries Association) (2004): personal communication, Ljubljana 2004
43. PIPC (Polish Chamber of Chemical Industry) (2003): 'Production sold of chemical industry according to branches in 2002', memo
44. PIPC (Polish Chamber of Chemical Industry) (2004a): *Chemical industry in Poland. Annual Report 2003*, downloads: http://www.pipc.org.pl/raport_2004%20cz-1.pdf and http://www.pipc.org.pl/rap.pdf
45. PIPC (Polish Chamber of Chemical Industry) (2004b): 'Characterisation of the chemical industry in Poland', interview with PIPC members, 16th September, 2004
46. RPA (Risk & Polica Analysts Limited) (2004): REACH – One substance, one registration. Final report. Loddon, December 2004
47. SCHP (Association of chemical industry of the Czech Republic) (2003): *Annual Report 2003 on the development of chemical industry in Czech Republic*, Prague, download: http://www.schp.cz/schp/zpravy/Annual_Report_2003.zip
48. SCHP (Association of chemical industry of the Czech Republic) (2004): personal communication, Prague 2004
49. Statistical Office of Estonia (2005): General export and import by commodity groups, http://pub.stat.ee/px-web.2001/I_Databas/Economy/Economy.asp
50. ACICR (Association of the Chemical Industry of the Czech Republic) (1998): Impacts of the Commission's White Paper on the Chemical Industry in CEE Countries. Country Report: The Czech Republic. Brussels :CEFIC-PHARE.
51. Andonova, Liliana (2004): Transnational Politics of the Environment. The European Union and Environmental Policy in Central and Eastern Europe. Cambridge: MIT Press.
52. Andrijewski, Michal (2001): Current State in Transposing EU Chemical Legislation in Poland. Presentation at the Workshop on Application of EU Chemicals Legislation in the Candidate Countries: Progressing towards EU Enlargement, 26.-27. April 2001, Istanbul.
53. Bláha, Karel (2001): Chemicals Legislation in the Czech Republic: Two Years of Implementation. Presentation at the Workshop on Application of EU Chemicals Legislation in the Candidate Countries: Progressing towards EU Enlargement, 26.-27. April 2001, Istanbul.
54. Bonis, Miklos (2003): The Expected Effects of the EU Accession on the Chemical Industry in Hungary. Budapest: International Center for Economic Growth – European Center.
55. Bucknall, Julia; Rita Cestti; Gordon Hughes (2000): The Czech Republic - Complying with the European Environmental Directives. World Bank: Washington D.C.
56. CEC (Commission of the European Communities) (1997): Guide to the Approximation of European Union Environmental Legislation. Revised and Updated Version of SEC (97) 1608.
57. CEC (1998): Communication from the Commission to the Council, the European Parliament, the Economic and Social committee, the Committee of the Regions and the Candidate Countries in Central and Eastern Europe on Accession Strategies for Environment: Meeting the Challenge of Enlargement with the Candidate Countries in Central and Eastern Europe, COM (98) 294.
58. CEC (2001): Communication from the Commission: The Challenge of Environmental Financing in the Candidate Countries, COM (2001) 304 final.
59. CEC (2002): Environmental Protection Expenditure in Accession Countries. Luxembourg: Office for Official Publications of the European Communities.

60. CEC (2003): Conclusions of the Informal Ministerial Meeting between Ms Wallström and the Ministers of the Environment of the Candidate Countries, 21 January 2003, Brussels.
61. CEFIC (1998): Impacts of the Commission's White Paper on the Chemical Industry in the CEE Countries - Final Reports. Brussels: CEFIC.
62. DANCEE (2002): The Environmental Challenge of EU Enlargement in Central and Eastern Europe, Copenhagen.
63. ECLIPS (2004): European Classification and Labelling Inspections of Preparations, including Safety Data Sheets, Final report, June 2004
64. EDC and EPE (1997): Compliance Costing for Approximation of EU Environmental Legislation in CEEC.
65. Fundowicz, Jacek (2003): The Expected Effects of the EU Accession on the Chemical Industry in Poland. Budapest: International Center for Economic Growth – European Center.
66. Government of Czech Republic (2002): Country Profile Czech Republic. Prepared for the World Summit on Sustainable Development (WSSD). Country Profiles Series: United Nations.
67. Government of Hungary (2002): Country Profile Hungary. Prepared for the World Summit on Sustainable Development (WSSD). Country Profiles Series: United Nations.
68. Government of Slovenia (1997): National Action Programme for Integrated Chemicals Management in Slovenia.
69. Grabner, Alojz (2001): Slovene Chemicals Legislation. Presentation at the Workshop on Application of EU Chemicals Legislation in the Candidate Countries: Progressing towards EU Enlargement, 26.-27. April 2001, Istanbul.
70. Joint Commission/CEFIC Working Group on Enlargement (2000): Transposition and Implementation of Chemicals Acquis by the Candidate Countries of Central and Eastern Europe – Recommendations for Development, Brussels.
71. Lang, Krystyna (2002): Summary of the Transposed Chemicals Acquis in the Candidate Countries in Central and Eastern Europe. Presentation at the Conference "Making the Enlarged Internal Market for Chemicals a Reality", November 2002.
72. Olysarova, Magda and Tomas Sedlacek (2003): The Expected Effects of the EU Accession on the Chemical Industry in the Czech Republic. Budapest: International Center for Economic Growth – European Center.
73. REC (Regional Environmental Centre) (1996): Approximation of European Union Environmental Legislation. Case studies of Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Slovenia. Budapest: REC.
74. Soil and Water Ltd. (1999): Development of Action Programme for Implementation of EU Legislation on Chemicals in Lithuania. Final Report DISAE Project LIT-109.
75. Stocker, E. and Anwander, E. (2004): Assessment of Institutional Capacities. Implementation of European Legislation in the Area of Chemical Substances in the Czech Republic. Final Report Twinning Project CZ/2002/IB/EN/01, Prague.
76. UBA (2004): Analysis of the Costs and Benefits of the New EU Chemicals Policy. An Examination Based on Selected Sectors Taking into Account Effects on Competitiveness, Innovation, Environment, and Health. Berlin: UBA.
77. Witzani, Helmut and Michal Andrijewski (2004): Strengthening of the Administrative Capacity for Risk Assessment and Chemicals Control. 3rd Quarterly Report Twinning Project PL/IB/2002/OT/04.
78. World Bank (1999): Bulgaria – The Challenges of Complying with EU Environmental Directives. ESSD Discussion Paper: Washington D.C.
79. World Bank (1999a): Slovenia - Economic Transformation and EU Accession. Volume II: Main Report. Washington D.C.

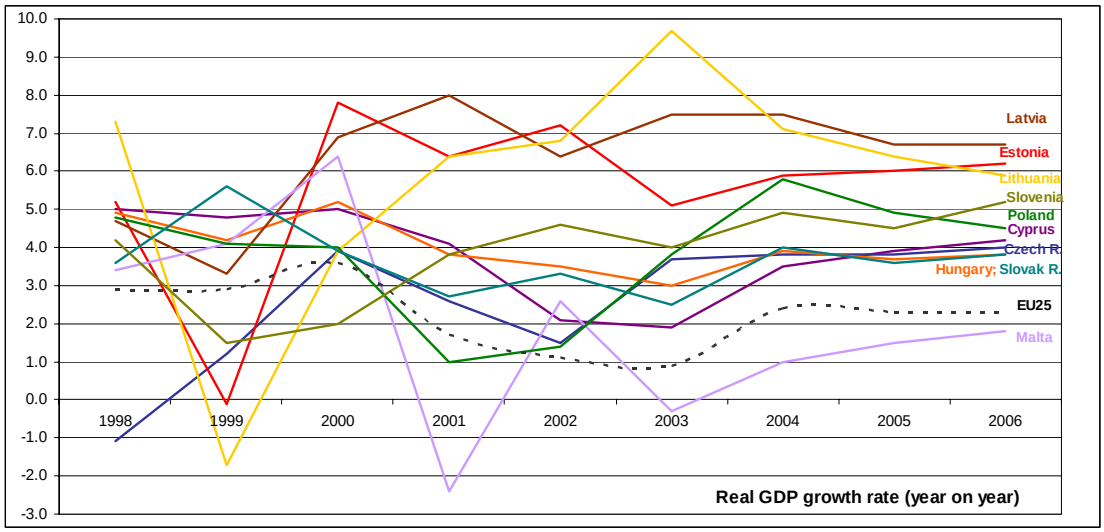
Institutions providing helpful background information for this report

- Bureau for Chemical Substances and Preparations, Poland
- CEFIC
- Environmental Protection Agency, Sweden
- Federal Environmental Agency, Austria
- Institute for Economic Research, Slovenia
- Malta Standards Authority
- Ministry of Environment, Czech Republic
- National Chemicals Bureau, Slovenia
- TME, Netherlands
- World Bank

F. ANNEXES

F.1 Annex 1. Figures and facts in NMS

Figure A1. GDP growth rate (y/y) in the NMS, 1998-2006



Source: EUROSTAT, January, 2005

Figure A2. GDP per capita in PPS, 1998-2006 (in relation to EU25=100 and listed by the value in 2004)

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Cyprus	83.7	84.5	85.8	88.8	82.9	81.3	**81.5**	82.2	83.0
Slovenia	72.0	73.9	73.3	74.8	75.3	76.8	**78.0**	79.1	80.2
Malta		77.6	78.6	75.0	74.3	75.1	**73.8**	72.9	72.2
Czech Republic	67.1	65.7	64.8	66.1	67.6	68.8	**69.8**	70.9	72.2
Hungary	51.6	52.5	53.5	56.5	58.5	60.5	**61.6**	62.7	63.7
Slovak Republic	47.8	47.2	47.9	48.9	51.3	52.1	**53.4**	54.6	56.2
Estonia	41.8	41.1	43.5	44.8	46.6	48.5	**50.4**	52.5	54.7
Lithuania	39.1	37.7	38.5	40.8	42.4	45.8	**48.0**	50.0	51.8
Poland	45.0	45.6	45.8	45.9	45.6	46.0	**47.6**	48.9	50.0
Latvia	33.8	34.2	35.5	37.4	38.9	41.0	**43.2**	45.2	47.3

Source: EUROSTAT, January, 2005

Figure A3. Trends in trade, NMS

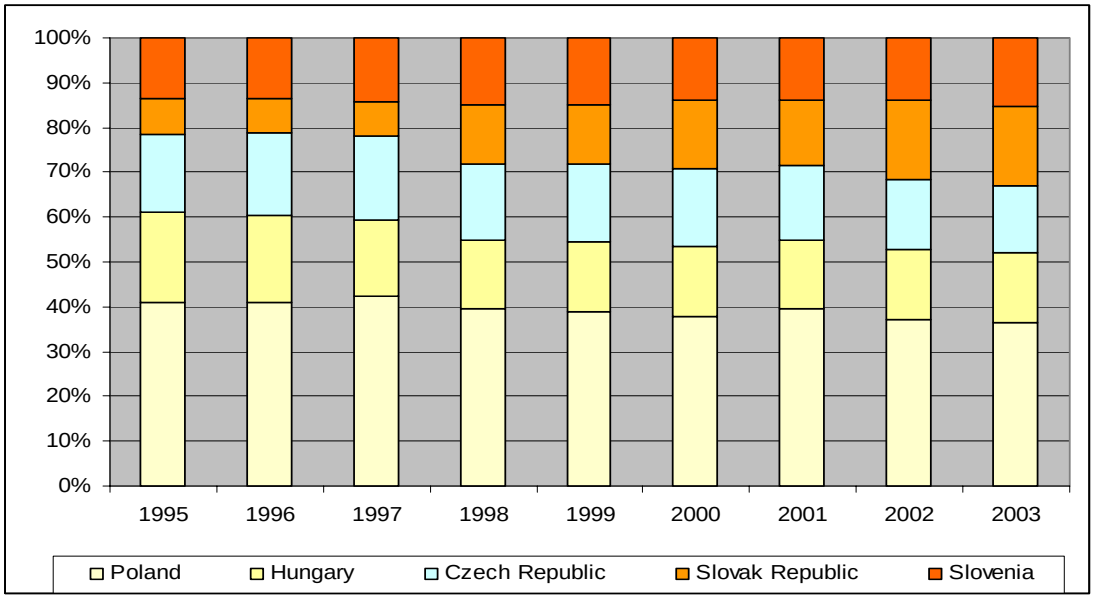
	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total export	50772	62581	65901	84576	98226	101103	131538	150244	167127
Export to EU15	29727	38093	38936	50938	63790	69592	88965	101361	112566
Export to EU25	37592	47528	49022	63199	77104	82603	105834	121344	133707
Total Import	62327	77838	91724	115360	130613	133503	169973	186523	203896
Import from EU15	36115	46454	53954	69167	81415	83666	100080	109865	117441
Import from EU25	42962	55170	63704	80788	93783	96313	116254	128790	136757
Export to EU15/total export	58.5%	60.9%	59.1%	60.2%	64.9%	68.8%	67.6%	67.5%	67.4%
Export to EU25/total export	74.0%	75.9%	74.4%	74.7%	78.5%	81.7%	80.5%	80.8%	80.0%
Import from EU15/total import	57.9%	59.7%	58.8%	60.0%	62.3%	62.7%	58.9%	58.9%	57.6%
Import from EU25/total import	68.9%	70.9%	69.5%	70.0%	71.8%	72.1%	68.4%	69.0%	67.1%
Trade performance	-10.2%	-10.9%	-16.4%	-15.4%	-14.2%	-13.8%	-12.7%	-10.8%	-9.9%
Trade performance with EU15	-9.7%	-9.9%	-16.2%	-15.2%	-12.1%	-9.2%	-5.9%	-4.0%	-2.1%

Figure A4. Value added of chemical industry (in EUR million)

	1995	1996	1997	1998	1999	2000	2001	2002	2000	2001
EU25					216122.7	231029.6	233762		*Country share*	
NMS	917.4	3510.9	4002	5261.7	5528.2	8044.5	10875.4	9457.6	100.0%	100.0%
Poland	0	2542.2	2893.1	3062.6	3411.6	3887.4	6096.8	4144	48.3%	**56.1%**
Czech R.						1544.1	1666.6	2014.9	19.2%	**15.3%**
Hungary				1077.7	1131.4	1314.9	1584.3	1799.6	16.3%	**14.6%**
Slovenia	417.6	436.7	477.2	536.4	549	615	673.4	776.2	7.6%	**6.2%**
Slovak R.	377.5	341.4	377.2	333.7	249.6	328.5	414.4	429.4	4.1%	**3.8%**
Lithuania	54.9	75.6	79	89.8	57.6	68.2	104.4	119.9	0.8%	**1.0%**
Cyprus			51.4	44.6	35.8	53.8	91.1		0.7%	**0.8%**
Latvia	67.4	67.3	68.1	75.3		90.5	89.9	91.6	1.1%	**0.8%**
Estonia		47.7	56	41.6	21.5	60	77.9	82	0.7%	**0.7%**
Malta					71.7	82.1	76.6		1.0%	**0.7%**

Source: EUSTAT, January, 2005

Figure A5. Country share of turnover, NMS



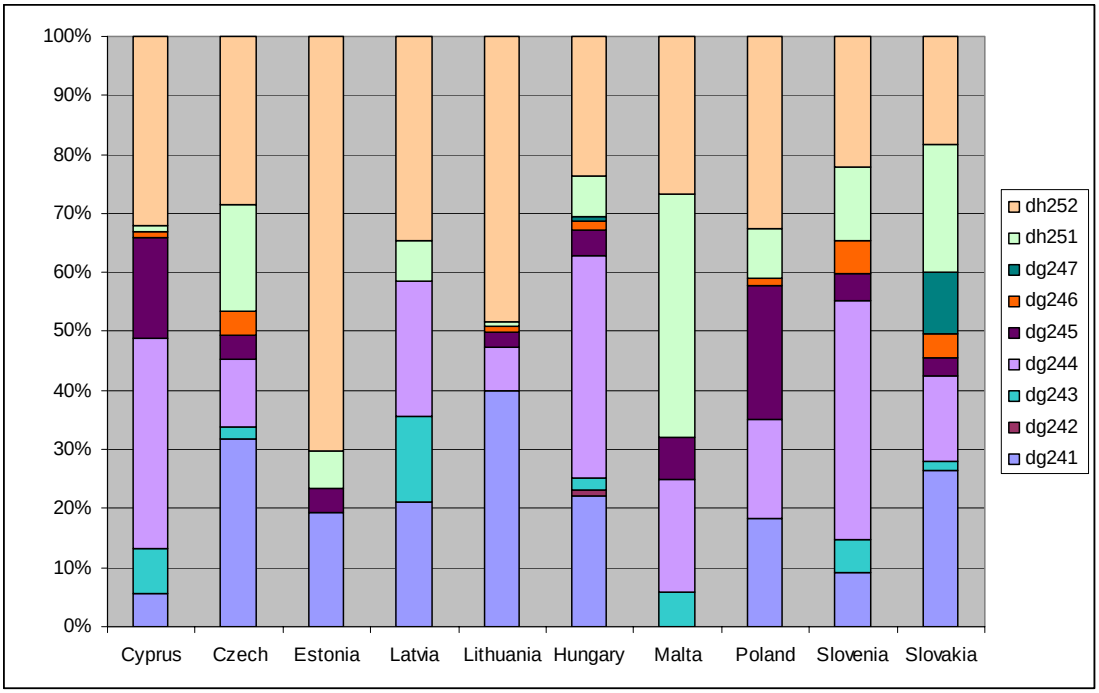
Source: CEFIC, 2005

Figure A6. Valued added by sub-sector, NMS

NMS	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Total chemical industry	*917.4*	*3510.9*	*4002*	*5261.7*	*5528.2*	*8044.5*	*10875*	*9457.6*
dg24	620.6	2407.7	2644	3481.3	3460.4	5128.4	6513.3	5450.5
dg241	153.5	853.6	830.3	1099.1	785	1973.9	2238.5	1817.6
dg242	0	4.6	6.2	11.2	16.4	0.1	17.6	28.1
dg243	38.3	142.2	163.4	196.4	235.1	119.7	131.5	162.5
dg244	221.3	623.7	729.3	1118.3	1112.1	1552.1	2214.2	2044.3
dg245	53.7	309	418.6	538.2	607.9	812.5	1601.8	1017.1
dg246	33	41	37.9	0.7	2.2	128.7	146.9	189.4
dg247	57.2	44.2	51.3	62	38.9	31.7	57.1	78
dh25	296.8	1103.2	1358	1780.4	2067.8	2916.1	4362.1	4007.1
dh251	119.2	362.3	406.6	490.9	541.8	880.7	1134	1177.2
dh252	170.9	721	919	1246.8	1481.1	2035.4	3228.1	2829.9

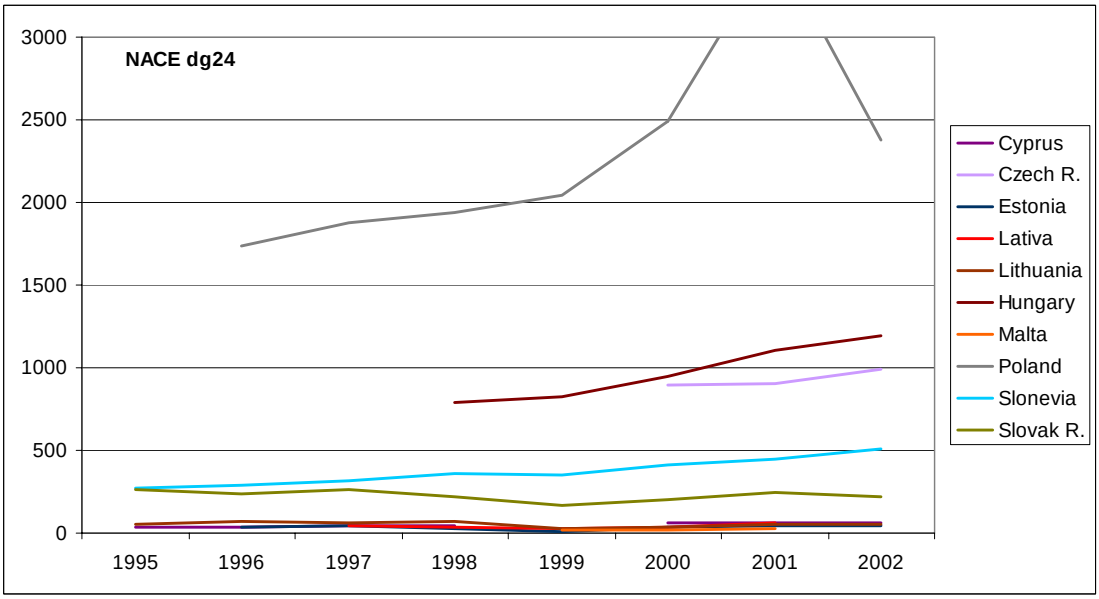
Source: EUROSTAT, January, 2005 (Note: no data are given in dg242, 246, and 247 for Poland and considering the dominant size of the Polish industry among the NMS, these figures and Figure 5 should be understood with caution).

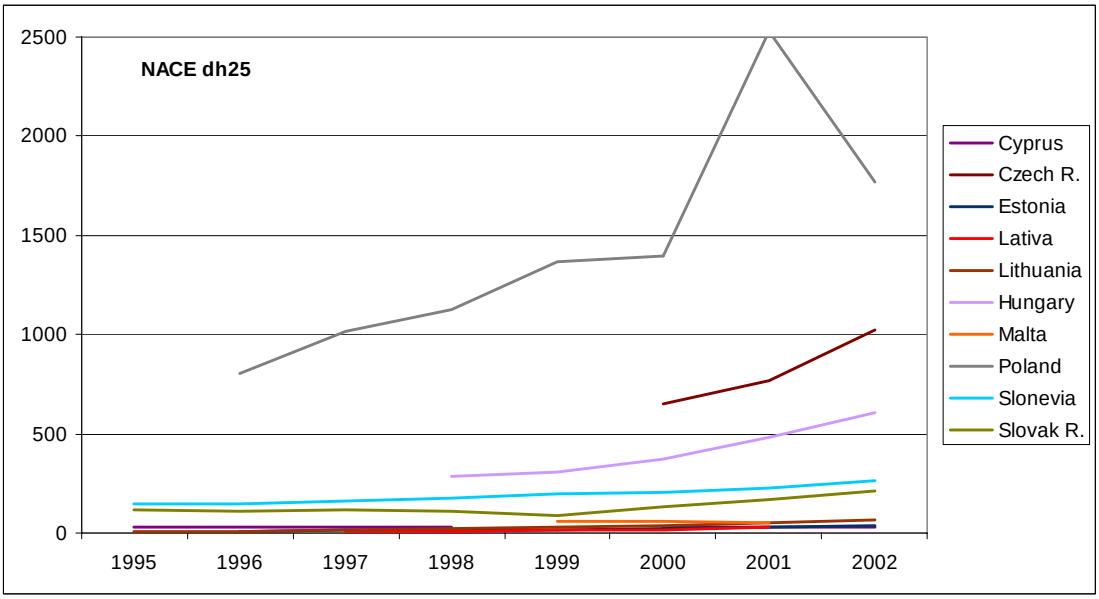
Figure A7. Sub-sector value added by country, 2001



Source: EUROSTAT, January, 2005

Figure A8. Sub-sector growth in value added, NMS





Source: EUROSTAT, January, 2005

Figure A9. Number of persons employed.

	1995	1996	1997	1998	1999	2000	2001	2002	2001
EU25					3591800	4E+06	3584100		**Country share**
NMS						465751	479939	470877	100%
Poland		2E+05	235294	232865		233000	206161	200000	43%
Czech R.	88278	1E+05	106422	102585	102781	100762	105873	110833	22%
Hungary				69762	67664	67101	74199	76528	15%
Slovak R.						34430	34518	33894	7%
Slovenia							27570	27570	6%
Lithuania	12265	13037	13035	12903	12582	12178	12663	12860	3%
Estonia						6121	6393	6326	1%
Latvia				9088	5290	6389	6851		1%
Cyprus	2963	2952	2870	2992		2878	2879	2866	1%
Malta					2866	2892	2832		1%

Source: EUROSTAT, January, 2005; (data for Poland 2001 and 2002 are derived from data published by Polish Chamber of Chemical Industry; 2001 data from Slovenia are taken from 2002). Note: CEFIC reported that the total employment of Poland, Czech, Hungary, Slovakia and Slovenia was 220.000 in 2001, which is significantly lower than that of EUROSTAT.

Figure A10. Enterprises and average employees of the chemical industry, 2001

	Number of Enterprises			Average number of employees per enterprise		
	Chemical Industry	**NACE dg24**	**NACE dh25**	**Chemical Industry**	**NACE dg24**	**NACE dh25**
Poland	11758	2369	9389	16	35	10.8
Czech R.	3861	1236	2625	25	28.4	22.8
Hungary	3322	734	2588	18	29.5	14.3
Slovenia	1859	329	1530	11	23.6	7.7
Lithuania	470	99	371	24	48.4	17.2
Slovak R.	437	130	307	70	120.3	48.1
Estonia	193	69	124	33	44.4	26.3
Latvia	191	79	112	26	33.2	21.7
Cyprus	117	55	62	19	17.7	20.1
Malta	112	65	47	22	6.5	42.5
NMS	21276	4713	16563			
EU25	89298	27446	61852	33	49.4	26.1

Figure A11. Import and export of the chemical industry (in million EURO)

total export	1995	1996	1997	1998	1999	2000	2001	2002	2003
Poland	1465.3	1513.2	1803.3	1705.9	1564.5	2274.6	2350.7	2527.3	2606.2
Hungary	1266.8	1316.5	1427.9	1378.9	1385.5	1913.0	2078.6	2233.7	2146.9
Czech R.	1486.5	1523.8	1610.5	1691.3	1659.2	2079.2	2231.1	2196.7	2314.1
Slovak R.	956.1	918.2	943.7	960.2	985.5	1703.7	1666.8	2574.9	2663.7
Slovenia	930.1	998.7	1189.6	1226.4	1270.7	1531.2	2029.1	1922.4	2145.7
total import									
Poland	3753.6	3792.8	4847.9	5379.6	5739.3	7028.9	7713.8	8091.3	7578.2
Hungary	1942.8	1958.1	1957.1	2155.0	2287.7	3163.8	3357.4	3584.2	3758.7
Czech R.	2147.2	2368.6	2736.7	2915.7	3043.1	3688.6	4181.5	4493.7	4796.9
Slovak R.	855.7	937.5	961.6	380.0	233.5	1462.4	1334.5	2905.3	3205.8
Slovenia	1163.7	1168.6	1329.1	1437.8	1476.9	1791.7	2028.1	1967.8	2066.2
total export to non-EU15									
Poland	678.9	793.3	1019.3	841.1	748.1	1054.0	1192.6	1295.4	1329.1
Hungary	443.4	667.0	801.2	667.8	841.1	1088.4	1262.5	1370.8	1308.3
Czech R.	674.9	807.9	791.7	867.0	819.4	1086.0	1194.5	1230.5	1231.4
Slovak R.	615.4	592.6	609.1	590.7	600.1	1106.6	1089.9	1497.7	1522.3
Slovenia	557.0	647.4	782.6	768.6	781.0	930.9	1214.5	1288.4	1459.4
total import from non-EU15									
Poland	1180.1	1229.8	1517.6	1601.3	1609.5	1956.9	2237.6	2329.8	2197.7
Hungary	722.7	486.7	681.0	685.6	880.0	969.5	1065.7	1107.5	1107.5
Czech R.	649.2	610.1	729.7	743.0	742.5	1237.4	1401.5	1445.1	1526.4
Slovak R.	470.8	465.2	477.5	124.3	95.4	1290.6	1213.5	1193.4	1343.7
Slovenia	370.1	331.1	432.6	408.7	427.5	550.4	623.9	583.2	629.4
Export to EU15									
Poland	786.4	719.9	783.9	864.8	816.4	1220.5	1158.0	1231.9	1277.0
Hungary	823.4	649.5	626.7	711.1	544.4	824.6	816.1	862.9	838.7
Czech R.	811.7	715.9	818.8	824.4	839.7	993.2	1036.6	966.2	1082.7
Slovak R.	340.8	325.6	334.7	369.5	385.3	597.1	576.9	1077.2	1141.4
Slovenia	373.1	351.3	407.0	457.8	489.6	600.3	814.6	634.0	686.3
Import from EU15									
Poland	2573.5	2563.0	3330.3	3778.2	4129.8	5072.0	5476.2	5761.5	5380.5
Hungary	1220.0	1471.4	1276.1	1469.4	1407.8	2194.3	2291.7	2476.8	2651.2
Czech R.	1498.0	1758.5	2007.0	2172.8	2300.7	2451.3	2780.0	3048.6	3270.5
Slovak R.	384.9	472.3	484.1	255.7	138.1	171.9	121.0	1711.9	1862.1
Slovenia	793.6	837.5	896.5	1029.1	1049.4	1241.2	1404.2	1384.6	1436.8
NMS (above country)									
total export	6104.8	6270.4	6975	6962.8	6865.4	9501.7	10356	11455	11877
total import	9863.06	10226	11832	12268	12781	17135	18615	21042	21406
export to non-EU15	2969.44	3508.1	4003.9	3735.2	3789.8	5266	5954.1	6682.9	6850.5
import from non-EU15	3393.02	3122.9	3838.4	3562.9	3754.9	6004.8	6542.2	6658.9	6804.8
Export to EU15	3135.36	2762.3	2971.1	3227.6	3075.6	4235.8	4402.1	4772.1	5026.1
Import from EU15	6470.04	7102.7	7993.9	8705.2	9025.7	11131	12073	14383	14601
trade flow	15967.9	16496	18807	19231	19646	26637	28972	32497	33282
trade performance with EU15	-35%	-44%	-46%	-46%	-49%	-45%	-47%	-50%	-49%
trade performance with non-EU15	-6.7%	5.8%	2.1%	2.4%	0.5%	-6.6%	-4.7%	0.2%	0.3%

Source: CEFIC, 2005

F.2 Annex 2: Administrative Structure for chemicals control in the New Member States

	Cyprus	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Malta	Poland	Slovak Republic	Slovenia
Responsible Ministry for other chemicals than PPP	Ministry of Labour and Social Insurance	Ministry of Environment; Ministry of Health	Ministry of Social Affairs	Ministry of Environment	Ministry of Environment; Ministry of Health	Ministry of Environment; Ministry of Health; Ministry of Economy	Ministry of Environment	Ministry of Health, Ministry of Environment; Ministry of Economy; Ministry of Labour and Social Policy	Ministry of Economy; Ministry of Health	Ministry of Health, Ministry of Environment, Spatial Planning and Energy; Ministry of Economy
Central Authority			Chemicals Notification Centre	National Institute of Chemical Safety	Latvian Environment Agency; Latvian Public Health Agency	Non-Food Products Inspectorate (Min. of Economy, reorg. on its way), State Public Health Service	Malta Standards Authority	Bureau for Chemicals and Preparations	Center for Chemicals and Chemicals Preparations	National Chemicals Bureau
Supervision Producers / Importers		Environment Inspectorate, Regional Health Authority	Health Protection Inspectorate		State Sanitary Inspectorate	NFPI; State Environment Inspectorate (not finally settled)		State Sanitary Inspectorate; Environment Inspectorate, State Labour Inspectorate	Health Inspectorate; Slovak Environment Inspectorate	
Responsible Ministry for PPP		Ministry of Agriculture	Ministry of Agriculture	Ministry of Agriculture	Ministry of Agriculture	Ministry of Agriculture	Ministry of Agriculture and Fisheries	Ministry of Agriculture	Ministry of Economy; Ministry of Agriculture	Ministry of Agriculture, Forestry and Food

F.2.1 Annex 2.1 Chemical Acquis

Testing Methods	Notification of substances	Evaluation and control of existing substances	Hazard identification and risk communication	Transport	*Special use and product related legislation**
Animal Testing (86/609/EEC) Good Laboratory Practice (87/18/EEC) GLP Inspection (88/320/EEC)	Notification of New Substances (67/548/EEC) (93/67/EEC)	Evaluation and control of existing substances (EEC/793/93) (EC/1488/94) (67/548/EEC) Annex 1 (76/769/EEC) Asbestos (87/217?EEC)	Classification, Labelling and Safety Data Sheet (67/548/EEC) (1999/45/EEC) (91/155/EEC) latest amendment Imports and Exports of dangerous substances (EEC/2455/92)	Dangerous Goods by Road (86/609/EEC)	*Biocides* *Plant protection* *Detergents* *Medical Devices* *Toys* *Construction and Building products* ** List incomplete, as not integral part of Chemical Acquis*

F.3 Annex 3 – Information sources per Country

The information available in written form was insufficient to draw conclusions about the REACH impact analyses in NMS. Therefore it was necessary to gather supplementary information from stakeholders involved in impact analyses, decision-makers, research institute staff, industry representatives and other potentially well-informed people. The relevant sources for this report are presented in Tab. 1.

Tab. 1. Description of information sources on national REACH IA studies.

Cyprus		
Abbreviation	**Type of information**	**Information source description**
Leodidou2004	Mail Interview	Dr Tasoula Kyprianidou-Leodidou. Labour Inspection Officer Department of Labour Inspection 19.10.2004

Czech Republic		
Abbreviation	**Type of information**	**Information source description**
BurelKrejcova 2004	Summary of the report	Ing. Jiří Burel, Ing. Alena Krejčová. The REACH system impacts on the industry of the Czech Republik. Ministry of Industry and Trade, 21.05.2004. Extended summary of the Study available in the Internet on the web-site: http://www.mpo.cz/scripts/modules/dmsdoc/document.php?lid=3&id=10625 The shortened version of the study "The impacts of the prepared chemical policy on the manufacturing industry of the Czech Republic", elaborated at the Research Institute of Organic Synheses, Pardubice.
CzechIAStudy Pardubice2003	Full report	Dopady připravované chemické politiky REACH na zpracovatelský průmysl České republiky. Viktor Mejstřík, Rostislav Čihák, Libuše Držková, Oldřich Petira, Výzkumný Ústav Organických Syntéz A.S. Pardubice - Rybitw. Centrum ekologie, toxikologie a analytiky CETA – VÚOS a.s. Pardubice, November 2003 (The impacts of the prepared chemical policy on the manufacturing industry of the Czech Republic. Pardubice, November 2003)
Blaha2004	Presentation	Karel Blaha: Preparation of the Implementation of REACH in the Czech Republic. Seminar: The new chemical legislation REACH Ministry of Industry and Trade. November 4, 2004
Petira2004	Presentation	Oldrich Petira: Dopady systému REACH na průmysl Ceské Republiky Seminar: The new chemical legislation REACH Ministry of Industry and Trade. November 4, 2004
SCHP2004	Written Information	Návrh SCHP ČR na úpravy Hlavy II návrho Komisie na Nariadenie Parlamentu a rady „REACH" v znení COM(final)
Association 2003	Written Information	Stanovisko Svazu chemického průmyslu ČR k návrhu Nařízení REACH, kterým Evropská komise formuluje novou chemickou politiku v Evropské Unii 7. 11. 2003 Association of Chemical Industry of the Czech Republic

Estonia		
Abbreviation	**Type of information**	**Information source description**
Mauer2004	Mail and telephone interviews	Diana Maurer - Internal Market Department. Ministry of Economic Affairs and Communications
Working11/04	Written information	Working Document 11/04 (Ad-hoc Working Party on Chemicals) Brussels, 3 February 2004 Estonian note on an impact assessment study

Hungary		
Abbreviation	**Type of information**	**Information source description**
Working96/04 Hague	Written information	Working document 96/04 for REACH Workshop 25-27 October 2004, the Hague
KozakInterview2004	Personal interview	Interview with dr Kristof Kozak Chief Counsellor, Ministry of Environment and Water, conducted in October 2004 in Budapest.
HungaryQuest	Other	Questionnaire – sent to chemical agencies
Muranyi2004 Budapest	Presentation	István Murányi: Downstream Users & REACH. Seminar: Understanding the impact of REACH. CIBA Expert-Service. 27-28th October, 2004. Budapest
GalvogyiInterview2005	Mail, telephone Interview	Interview with dr Maria Galvogyi Department of EU Integration, conducted on 26.01.2005

Latvia		
Abbreviation	**Type of information**	**Information source description**
LudborzsInterview2004	Personal interview	Arnis Ludborzs - Latvian Environmental Agency, Chemical Register; interview conducted on 17th December 2004 in Riga
BabreInterview2004	Personal Interview	Kristine Babre - Baltic Environmental Forum, interview conducted on 16th December 2004 in Riga
Babre Mail2004	Mail interview	Kristine Babre - Baltic Environmental Forum, interview conducted in November and December 2004

Lithuania		
Abbreviation	**Type of information**	**Information source description**
Working84/04 Hague	Written information	Working document 84/04 for REACH Workshop 25-27 October 2004, the Hague –
EU2004 REACH	Written information	EU2004REACH - The impact of REACH. Overview of 36 studies on the impact of the new EU chemicals policy (REACH) on society and business. ECORYS, OpdenKamp Adviesgroep. Workshop REACH Impact Assessment, 25th - 27th October 2004, the Hague, the Netherlands.
Bajoraitienė 2004	Mail interviews	Aurelija Bajoraitienė Chief Desk Officer Ministry of Environment, Environmental Quality Department, Chemicals Management Division
Mazunaitis 2005	Telephone interview	Interview with Giedrius Mazunaitis author of the Lithuanian study conducted on 27.01.2005
Jegorova2005	Telephone interview	Ilona Jegorova Ministry of Economy conducted on 26.01.2005

Malta		
Symbol	**Type of information**	**Source description**
Seychell2004 Warsaw	Presentation	Martin Seychell: General comments on REACH policy – challenges and opportunities. Seminar: Accession to REACH system. Ministry of Health 17 February 2004, Warsaw.
CamilieriTel 2004	Telephone interview	Tristan Camilleri Foodstuffs, Chemicals and Cosmetics Directorate, Malta Standards Authority. 20.10.2004
CamilieriMail 2004	Mail Interview	Tristan Camilleri Foodstuffs, Chemicals and Cosmetics Directorate, Malta Standards Authority. 22.10.2004
Ds 874/04	Written Information	Ds 874/04 Council of the European Union Brussels, 17 December 2004 Note from: Maltese delegation to: Council (Environment) Subject: Meeting of the Environment Council, 20 December 2004.Policy debate on REACH

Poland		
Abbreviation	**Type of information**	**Information source description**
Konieczko 2003	Full report	Katarzyna Konieczko: Opinion on staff requirements in case of REACH implementation. Inspectorate for Chemical Substances and Preparations, Institute of Occupational Medicine, Łódź, October, 2003.
Working99/04 Hague	Written info on study	Working document 99/04 for REACH Workshop 25-27 October 2004, the Hague
MajkaFengler Zabadala2004 Praque	Presentation	Jerzy Majka, Izabela Fengler, Piotr Zabadała: Country specific experiences – REACH preparatory activities in Poland. Workshop on New Chemicals Policy and its impact on the New Member States, 27 May 2004, Prague.
Majka2004 Vienna	Presentation	Jerzy Majka : Country-specific experiences – Poland. CHEMLARGEMENT 2004. Conference on the New European Chemicals Policy within the Enlarged Union VIENNA - 23/24 September 2004
WielezynskiKrzeslakTulinska2004WarsawFeb	Presentation	Wojciech Lubiewa-Wieleżyński, Andrzej Krześlak, Marcela Palczewska-Tulińska: REACH and Polish chemical industry Seminar: Accession to REACH system. Ministry of Health, 17 February 2004, Warsaw, Poland.
WielezynskiKrzeslakTulinska2004WarsawNov	Presentation	Wojciech Lubiewa-Wieleżyński, Andrzej Krześlak, Marcela Palczewska-Tulińska: Polish Chemical Industry vs. REACH Meeting on REACH organized by the American Chamber of Commerce, . 26 November 2004, Warsaw, Poland
Kapstein2004 Warsaw	Presentation	Jonathan Kapstein FUTURE EU CHEMICALS POLICY: The View of the American Chamber of Commerce Meeting on REACH organized by the American Chamber of Commerce in, 26 November 2004, Warsaw, Poland
Baranski2004 Warsaw	Presentation	Bogusław Barański: REACH in Poland. Seminar: Accession to REACH system. Ministry of Health 17 February 2004, Warsaw.
Zabadala2004 Torun	Presentation	Piotr Zabadała. Workshop: REACH System - new challenge for chemical industry. Ministry of Economy and Labour. Department of Industrial Policy. Toruń, 15 October 2004,
Wielezynski2004Warsaw	Presentation	Wojciech Lubiewa-Wieleżyński: REACH System and its effect for Poland. Meeting with EU Parliament deputies. 28 June 2004. Warsaw.
WielezynskiKrzeslak2004 Brussel	Presentation	Wojciech Lubiewa-Wieleżyński, and Andrzej Krześlak: Ensuring Compliance with REACH in the Accession States: A Polish View. Seminar: Preparing for REACH. Assessing the Impact of New EU Chemicals Legislation on European Industry, Brussels, January 27 – 28, 2004.
KrzeslakPalczewska2004 Chemik	Written info on the study	Krześlak A., Palczewska – Tulińska M.: The effects of Implementation of REACH for Polish Chemical Industry Firms. Chemik 6-7/2004 pp. 211-218
WielezynskiKrzeslak2004 Chemik	Written info on the study	Lubiewa-Wieleżyński W., Krześlak A.: REACH System- Activities in Europe and Schedule for Necessary Activities In Poland. Chemik 6-7/2004 pp. 205-210
Niklewicz 2004	Written info on the study	Konrad Niklewicz: Unijna wojna o chemikalia (The Community's war for chemicals), Gazeta Wyborcza 18-01-2005
Leder2004	Written info on the study	Anna Leder: Projekt UE może zaszkodzić branży (The UE legislation proposal may negatively affect the chemical sector), Puls Biznesu 25-10-2004

Slovakia		
Abbreviation	**Type of information**	**Information source description**
Slovak study	Exempts from report	Parts of the study available on Ministry of Economy web-side http://www.economy.gov.sk/index/go.php?id=89
ZajacovaInterview2004	Personal interview	Interview with Mrs. Zajacova (VUSAPL), conducted in October 2004 in Nitra, Slovakia.
SlovakQuest	Other	Questionnaire – sent to chemical enterprises
SKpositiononOnesubstanceOne Registration	Written information	Stanovisko na rokowanie „Pracovnej skupiny Ad-hoc Working Party on Chemicals pre prípravu návrhu nariadenia o registrácii, hodnotení, autorizácii a obmedzení chemických látok - REACH „ na schylenie pracovného dokumentu WD 52/04 o návrhu Jedna látka, jedna registrácia - predloženého UK a HU. Brusel 6 - 7. septembra 2004 Slovak Ministry of Economy position for the debate of Ad-Hoc Working Group on Chemicals on UK-HU proposal 'One substance – one registration' . Brussels 6-7 September 2004

Slovenia		
Abbreviation	**Type of information**	**Information source description**
Furlan2004	Report	Short report by Janez Furlan: Ocena možnih učinkov nove kemijske zakonodaje na Slovensko industrijo. 09.06.2004. Ljubljana
Grabner Interview	Telephone interview	Alojz Grabner - Ministry of Health National Chemicals Bureau. 26.01.2005
Ds 871/04	Written Information	Ds 871/04 Council of the European Union Brussels, 17 December 2004 Note from: Slovenian delegation to: Council (Environment) Subject: Meeting of the Environment Council, 20 December 2004, Policy debate on REACH

F.3.1 Annex 3.1 – Institutions involved in REACH impact studies

The research performed during this study allowed the identification of those institutions in the NMS, which are responsible for the REACH impact assessment or the REACH implementation process. The results are presented in Tab. 2.

Tab. 2. Selected institutions in the New Member States relevant for the REACH impact assessment

Cyprus			
No.	Institution	Contact Person(s)	Type of institution
1	The Department of Labour Inspection, Ministry of Labour and Social Insurance 12 Apelli Steet P.O. Box 1493 NICOSIA	Leandros Nicolaides - Director Tel: + 357 22 405623 Fax: + 357 22 663788 director@dli.mlsi.gov.cy Dr Tasoula Kyprianidou-Leodidou Labour Inspection Officer tel. +357 22 405608 fax +357 22 663788 tkyprianidou@dli.mlsi.gov.cy	Governmental Authority
2	**Cyprus Institute of Technology** Ionion Nison 1, P.O.Box 20763, 1663 Lefkosia, Cyprus Tel: +357-22317288 Fax: +357-22318087	Marios Kourtellis, mkourtellis@dli.mlsi.gov.cy	Governmental Agency
3	Cyprus Aerosol, Detergents & Cosmetics Manufacturers Association 38 Grivas Dhigenis Avenue & 3 Deligiorgis Street, PO Box 28027, 1509 Nicosia, Cyprus	Mr Andreas Andreou Tel: +357 22 889 860, Fax: +357 22 665 685 andand@ccci.org.cy	Industrial Association

Czech Republic			
No.	Institution	Contact Person(s)	Type of institution
1	Ministry of Industry and Trade Na Františku 32 110 15 Praha 1	Ms Eva Veselá e-mail: veselae@mpo.cz , tel.: +420 2 2485 3368 Blanka Ksandrová tel. : +420 2 2485 3338 e-mail: ksandrova@mpo.cz, Alena Krejčová tel.: +420 2 2485 3285 e-mail: krejcova@mpo.cz	Governmental Authority
2	Ministry of Environment Ministerstvo životního prostředí ČR, Vršovická 65, 100 10 Praha 10. Tel: +420 267 121 111, fax: +420 267 310 308	Tomáš Novotný Deputy Minister - Director General Section of International Relations Phone: +420 267 12 29 16 Fax: +420 267 31 03 07 Karel Blaha	Governmental Authority
3	Research Institute of Organic Syntheses 532 18 Pardubice – Rybitví	Viktor Mejstřík Phone: +420 466 823 127, viktor.mejstrik@vuos.cz Oldrich Petira Phone: +420 466 823 010 oldrich.petira@vuos.cz	Research institute
4	Svaz chemického průmyslu České republiky Association of Chemical Industry of the Czech Republic Dělnická 12 170 00 Praha 7	Ing. Pavel Bartušek tel: +420 266 793 579 fax: +420 266 793 578	Industrial Association
5	Czech Chemical Society Novotného lávka 5, CZ-116 68 Praha 1	phone +420-221 082 383, tel/ fax+420-222 220 184, E-mail csch@csch.cz	Industrial Association

Estonia			
No.	Institution	Contact Person(s)	Type of institution
1	Ministry of Economic Affairs and Communications of Estonia, Internal Market Department	Ms. Diana Maurer Diana.Maurer@mkm.ee Ms Heli Laarmann heli.laarmann@sm.ee	Governmental Authority
2	Chemicals Notification Centre Address: Gonsiori 29-530 EE-15027 Tallinn	Ms Enda Veskimäe Phone: +372 (6269) 396 enda.veskimae@sm.ee	Governmental Agency

Hungary			
No.	Institution	Contact Person(s)	Type of institution
1	Ministry for Environment and Water H-1011 Budapest, Fo Str. 44-50,	Dr Kristof Kozak Telephone: +36-1-4573503 Fax: +36-1-2012491 E-mail: kozak@mail.ktm.hu	Governmental Authority
2	Department of EU Integration	Dr. Nandor Zoltai Tel +36-1 457-3320 zolta@mail.kvvm.hu Dr. Maria Galvolgyi Tel +36-1457-3480 galvolgyi@mail.kvvm.hu	Governmental Authority
3	National Institute of Chemical Safety Budapest, Nagyvárad tér 2, H-1096	Dr. Anna Tompa, director Telephone: +36-1-4761195 Fax: +36-1-4761227 E-mail: tompa.okbi@antsz.gov.hu dr Zoltan Adamis, deputy director, e-mail: adamisokbi@okk.antsz.hu	Research institution
4	**Oko-rt** 1013 Budapest, Attila út 16	**Nagy Istvan** László Mátyás matyas.laszlo@oko-rt.hu Telefon/Fax: +36 1 375-7774, +36 1 375-9324, +36 1 489-3579, +36 1 489-3580	Consulting company performing the study

Latvia			
No.	Institution	Contact Person(s)	Type of institution
1	Ministry of Environment, Peldu street 25, Riga, LV-1494,	Ms. Zane Gedrovica phone: +371 7026514. zane.gedrovica@vidm.gov.lv	Governmental Authority
2	Latvian Environmental Agency Osu iela 5, Jurnala, Lv-2015	Mr Arnis Ludborzs Phone: +371 -7755409 Fax: +371-7764162 e-mail: arnis.ludborzs@lva.gov.lv	Governmental Agency

Lithuania			
No.	Institution	Contact Person(s)	Type of institution
1	Ministry of Economy Product Technical Regulation Division Gedimino str. 38/2, LT-01104 Vilnius	Ilona Jegorova - Chief Officer Tel: +370 5 2628903, Fax: +370 5 2623974 i.jegorova@ukmin.lt	Governmental Authority
2	Ministry of Environment Environmental Quality Department Chemicals Management Division	Aurelija Bajoraitienė Chief Desk Officer Tel./fax +370 5 2663 502 e-mail: a.bajoraitiene@am.lt	Governmental Authority
3	Association of Chemical Industry Enterprises A.Vienuolio str. 8 – 304, LT–2600 Vilnius	Giedrius Mazunaitis - Executive Director Tel./fax +370 5 212 4175 E-mail: lchpia@tdd.lt	Industrial Association

Malta			
No.	Institution	Contact Person(s)	Type of institution
1	Policy and Regulatory Services Directorate	Richard Cachia Zammit - Assistant Director Tel: 25690205 Fax:21240516 E-Mail: Richard.cachia-zammit@gov.mt	Governmental Authority
2	Foodstuffs, Chemicals & Cosmetics Directorate Malta Standards Authority, Evans Building,Second Floor, Valletta, VLT03 Malta	Martin Seychell Tel. +00356 21255546, +00356 21242420 Fax : + 00356 21242406 martin.seychell@msa.org.mt	Governmental Authority

Poland			
No.	Institution	Contact Person(s)	Type of institution
1	Ministry of Economy and Labour Industrial Policy Department pl. Trzech Krzyży 3/5, 00-507 Warszawa	Piotr Zabadała phone +48 22 661 91 48 fax: +48 22 661 91 45 Antoni Miklaszewski Tel. +48 -22 693-50-12 Fax +48 -22 695 40 32 Krystyna Sender Tel +48 -22 693 56 35	Governmental Authority
2	Ministry of Environment ul. Wawelska 52/54 00-922 Warszawa	Tomasz Podgajniak (0 22) 57 92 404 wew. 404 Fax: (0 22) 57 92 280	Governmental Authority
3	Ministry of Public Health ul. Miodowa 15 00-952 Warszawa Chief Sanitary Inspectorate ul. Długa 38/40, 00-238 Warszawa	Izabela Fengler phone. (022) 635-45-81 fax (022) 635-61-94 inspektorat@gis.gov.pl	Governmental Authority
4	Bureau for Chemical Substances and Preparations ul Św. Teresy 8, 91-348, Łódź	Jerzy Majka - Inspector phone: (042) 6314679 biuro@chemikalia.mz.gov.pl	Governmental Chemical Agency
5	Institute of Industrial Chemistry	Andrzej Krześlak phone. (0-22) 633-95-67, fax: (0-22) 633-82-95 Andrzej.Krzeslak@ichp.pl	Research institution (supervised by the Ministry of Economy)

Slovakia			
No.	Institution	Person	Type of institutions
1	Ministry of Economy of tSlovakia MŽP SR, Nám. Ľ.Štúra 1, 812 35 Bratislava	Ms. Rybarova Magdalena Tel. 00421 -48 54 1802 Rybarova@economy.gov.sk	Governmental Authority
2	Slovak Environmental Agency CEI – Centre of Environmental Policy and Informatics Tajovského 28 975 90 Banská Bystrica	Mr Vladimír Benko Director benko@sazp.sk phone 00421 - 48/4132160	Governmental Agency
3	VUSAPL Novozamocka 179 POBox 50/A 949 01 Nitra	Zuzanna Zajacova tel 00421 37 65 01 149 fax 00421 37 6513495 mob 0905855688	Research Institute
4	CPEP – Centre of Environmental Project Programming Tajovského 28 97590 Banská Bystrica	Ing. Ivana Kuruczová 00421 48/4132160 00421 48/4713746 00421 48/4713710 kurucz@sazp.sk	Governmental Agency

Slovenia			
No.	Institution	Person	Type of institutions
1	**Ministry of Health** **National Chemicals Bureau** Mali trg 6 SI-1000 Ljubljana	**Dunja Piškur Kosmač, Director:** Dunja.Kosmac@gov.si tel.: +386 1 478 62 50 fax: +386 1 478 62 66 e-mail: Dunja.Kosmac@gov.si	Governmental Authority
2	CCIS - Chemical Industries Association Dimičeva 13, SI - 1504 Ljubljana	Janez Furlan, Director Telephone: +386 1/ 58 98 260 Fax: +386 1/ 58 98 100, 58 98 200 Janez.Furlan@gzs.si	Industrial Association

F.3.2 Annex 3.2 – REACH impact study overview

Country: Cyprus – Reference: CY0	
Study title	**No report was elaborated and no report is planned to be prepared**
Sources of information	Dr Tasoula Kyprianidou-Leodidou. Labour Inspection Officer Department of Labour Inspection 19.10.2004

Country: Czech Republic – Reference: CZ1	
Study title	**The impacts of the prepared chemical policy on the manufacturing industry of the Czech Republic**
Organization responsible for the report	Ministry of Industry and Trade
Organization performing the study	Research Institute of Organic Syntheses, Pardubice
Authors	Ing. Viktor Mejstřík, CSc.; RNDr. Rostislav Čihák, CSc.; Ing. Libuše Držková, CSc.; Ing. Oldřich Petira, CSc. Shortened version: Ing. Alena Krejčová, Ing. Jiří Burel,
Regional coverage	Czech Republic
Date of completion	May 2004
Included sectors of economy	Chemical industry – manufacturers and importers of chemical products textile, rubber, paper and petrochemical industry
Assessed impacts	Cost, prices of registration, CSR, authorization
REACH version analysed	October 2003
Availability of the study	Original report available: "Dopady připravované chemické politiky REACH na zpracovatelský průmysl České republiky. Viktor Mejstřík, Rostislav Čihák, Libuše Držková, Oldřich Petira, Výzkumný Ústav Organických Syntéz A.S. Pardubice - Rybitw. Centrum ekologie, toxikologie a analytiky CETA – VÚOS a.s. Pardubice, listopad 2003" Shortened version of the study available in Czech and English at: http://www.mpo.cz/scripts/modules/dmsdoc/document.php?lid=3&id=10625
Sources of information	Original report, shortened version, presentations, interviews, written information on the study

Country: Czech Republic - Reference: CZ2	
Study title	**REACH impact study: REACH economic impact on chemical industry, textile industry, paper industry and automobile industry. Feasibility study for the preparation of REACH Health impact study.**
Organization responsible for the report	Ministry of Environment National Institute of Public Health in Prague
Organization performing the study	Research Institute of Organic Syntheses, Pardubice
Authors	N/A
Regional coverage	Czech Republic
Date of completion	28 February 2005
Included sectors of economy	Chemical industry, automotive, textile, rubber, paper and petrochemical industry
Assessed impacts	N/A
REACH version analysed	N/A
Availability of the study	Not available
Sources of information	Interview with Ms. Alena Krejcova

Country: Estonia – Reference: EE1	
Study title	**Assessment of the impacts of REACH on Estonian chemicals industry**
Organization responsible for the report	**Ministry of Economic Affairs and Communications** **Ministry of Social Affairs**
Organization performing the study	**Ministry of Economic Affairs and Communications** **Ministry of Social Affairs,** **Ministry of Foreign Affairs** **Ministry of Environment,** **Chemicals Notification Centre** **Baltic Environmental Forum** **Consultancy: Oekopol Ltd. (Mr. Andreas Ahrens)**
Authors	**National working group on REACH (representatives of ministries and authorities mentioned above)** **Diana Maurer, co-operating expert Andreas Ahrens**
Regional coverage	**Estonia**
Date of completion	**March 2005**
Included sectors of economy	**Chemical industry: manufacturers of substances, formulators and companies trading with chemicals.**
Assessed impacts	**Cost, prices and margins** **Company's product portfolio and revenues**
REACH version analysed	**Proposal October 2003**
Availability of the study	**Not available**
Sources of information	**Diana Maurer telephone and mail interviews**

Country: Hungary – Reference: H1	
Study title	**Impact of the New European Chemical Policy on the Hungarian Economy**
Organization responsible for the report	Department of the EU Integration Ministry of Economy and Transport Ministry of Environment and Water
Organization performing the study	Öko Rt 1013 Budapest, Attila út 16
Authors	Nagy István Bácskai György
Regional coverage	Hungary
Date of completion	December 2004
Included sectors of economy	Chemical industry Furniture, automotive, textile, electronics industry, cleaning service
Assessed impacts	cost, prices and margins substance withdrawal innovation time to market of products competitiveness foreign trade exchange industry restructuring company's product portfolio and revenues health and environmental issues (benefits)[37]
REACH version analysed	Proposal October 2003
Availability of the study	Not available
Sources of information	Interviews: Dr Kozak from the Ministry and Environmental and Health, dr Galvogyi Department of EU Integration; Working Document 96/04 for REACH Workshop 25-27 October 2004, the Hague, Presentations

[37] Interview with Ms. Galvogyi

Country: Latvia – Reference: LV1	
Study title	Title of the planned study: "Assessment of the impacts of REACH on Latvian chemicals industry"
Organization responsible for the report	Ministry of Environment Ministry of Economy
Organization performing the study	Ministry of Environment, Ministry of Economy, Latvian Environmental Agency – Chemical Register, LAKIFA, Association of Latvian Chemical and Pharmaceutical Industry
Authors	Working group on REACH (representatives of ministries and agencies mentioned above), featuring a co-operating expert from Sweden
Regional coverage	Latvia
Date of completion	Probably September 2005
Included sectors of economy	Chemical industry Coverage of other sectors of economy depends on experts
Assessed impacts	Not known
REACH version analysed	Probably October 2003
Availability of the study	Not available The study is planned to start in February
Sources of information	Arnis Ludborzs - Latvian Environmental Agency, Chemical Register; interview conducted on 17th December 2004 in Riga

Country: Lithuania – Reference: LT1	
Study title	The essence of the new registration, evaluation and authorisation system of chemicals (REACH) and envisaged impact on the economy of Lithuania
Organization responsible for the report	Ministry of Economy Ministry of Environment
Organization performing the study	Gimatis Ltd - a member of the association of the Lithuanian chemical industry enterprises
Authors	Giedrius Mazunaitis
Regional coverage	Lithuania
Date of completion	October 2004
Included sectors of economy	Chemical industry
Assessed impacts	Costs
REACH version analysed	October 2003 Proposal
Availability of the study	Not available
Sources of information	Working document 84/04 for REACH Workshop, Interviews: Mr. Giedrius Mazunaitis- GIMATIS; Ms. Ilona Jegorova, Ministry of Economy

Country: Malta – Reference: MT0	
Study title	No report exists
Sources of information	Interviews: Mr. Tristan Camilleri Foodstuffs, Chemicals and Cosmetics Directorate, Malta Standards Authority. Presentations by Dr. Seychell

Country: Poland - Reference: PL1	
Study title	Impact Assessment of the REACH system on the chemical industry
Organization responsible for the report	Ministry of Economy and Labour
Organization performing the study	Institute of Industrial Chemistry
Authors	Andrzej Krześlak Marcela Palczewska-Tulińska
Regional coverage	Poland
Date of completion	Part I - December 2003, Part II – February 2005 (pending)
Included sectors of economy	Part I- Chemical industry Part II – Chemical industry including small and medium enterprises Textile, automotive, leather industries Chemical research institutes – Laboratories
Assessed impacts	Part I - Cost, prices of registration and tests Part II – extended analysis (more enterprises[38]: Cost of registration and tests Innovations Competitiveness The costs of Polish laboratories' adjustment to the GLP
REACH version analysed	Proposal October 2003
Availability of the study	Non-available, even a summary; multiple requests refused
Sources of information	Presentations by the authors, written information on the report, interviews

Country: Poland - Reference: PL2	
Study title	Opinion on staff requirements in case of REACH implementation
Organization responsible for the report	Bureau for Chemical Substances and Preparations
Organization performing the study	Institute of Occupational Medicine
Authors	Katarzyna Konieczko
Regional coverage	Poland
Date of completion	October 2003
Included sectors of economy	Chemical enterprises, governmental authorities, control agencies
Assessed impacts	Additional staff requirements
REACH version analysed	Proposal May 2003
Availability of the study	Available on the Bureau for Chemical Substances and Preparations web-site : http://www.chemikalia.mz.gov.pl/upload/Raport_obciazenia_kadrowe.pdf
Source of information	Full report, presentation by Mr. Baranski, February 2004

[38] Wojciech Lubiewa-Wieleżyński**,** Andrzej Krześlak, Marcela Palczewska-Tulińska: Polish Chemical Industry vs. REACH Meeting on REACH organized by the American Chamber of Commerce in Poland. 26 November 2004, Warsaw

Country: Slovakia – Reference: SK1	
Study title	REACH impact on chemical industry in Slovakia
Organization responsible for the report	Ministry of Economy
Organization performing the study	VUSAPL a.s., joint-stock comp.
Authors	Zuzanna Zajacova, Magda Rybarova
Regional coverage	Slovak Republic
Date of completion	December 2004
Included sectors of economy	mainly: chemical industry also downstream users: paper, metallurgy, textile, plastic, rubber industry
Assessed impacts	Registration costs, tests costs, CSR elaboration costs
REACH version analysed	Proposal October 2003
Availability of the study	Available: parts of the study are available on the Slovak Ministry of Economy web-side http://www.economy.gov.sk/index/go.php?id=89
Sources of information	Parts of study available on the web-side Interviews: Zuzanna Zajacova

Country: Slovenia – Reference: SLO1	
Document title	**Impact assessment of REACH on the industry in Slovenia**
Organization responsible for the document	Chamber of Commerce and Industry of Slovenia
Organization issuing the document	CCIS - Chemical Industries Association
Authors	Janez Furlan
Regional coverage	Slovenia
Date of completion	June 2004
Included sectors of economy	Chemical industry
Assessed impacts	Costs,
REACH version analysed	Proposal October 2003
Availability of the document	Original documents disclosed
Sources of information	Document: Ocena možnih učinkov nove kemijske zakonodaje na Slovensko industrijo. 09.06.2004. Ljubljana; Interview with Mr. Alojz Grabner