

**MINISTRY OF ECONOMIC AFFAIRS AND LABOUR**  
**REPUBLIC OF POLAND**

RESULTS OF  
THE POLISH IMPACT ASSESSMENT OF  
IMPLEMENTATION OF THE REACH  
SYSTEM (REGISTRATION, EVALUATION  
AND AUTHORISATION OF CHEMICALS)  
ON THE POLISH CHEMICAL INDUSTRY  
AND DOWNSTREAM USERS

European Committee of the Council of Ministers  
pass the document  
on 15 April 2005

*„Impact assessment of implementation of the REACH system (Registration, Evaluation and Authorization of Chemicals) on the Polish chemical industry and downstream users” by the Institute of Industrial Chemistry. Impact assessment made on December 2004 under the contract between Institute of Industrial Chemistry and Ministry of Economic Affairs and Labour.*

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## 1. PURPOSE OF THE PAPER

The purpose of the paper entitled “*Impact assessment of implementation of the REACH (Registration, Evaluation and Authorization of Chemicals) system on the Polish chemical industry and downstream users*” was to evaluate the effects of implementing the EU legislative proposal of REACH for the Polish chemical industry (with a particular emphasis on small and medium enterprises) and the sectors which rely on chemical industry products.

## 2. SCOPE

The scope of the paper covered:

1. Analysis of the potential impact of implementing REACH on:
  - the Polish chemical industry with a particular emphasis on small and medium enterprises (< 250 workers),
  - selected sectors related to the chemical industry.
2. Evaluation of the impact of the new regulation (REACH) on innovation and competitiveness of the Polish industry.
3. Estimation of the cost of adapting Polish laboratories to the Good Laboratory Practice (GLP) requirements.
4. Development of a summary analysis of the impact and costs of implementing REACH in the Polish chemical industry.

The analysis covered the total of 78 enterprises, including 28 large (> 250 workers) and 50 small and medium ones (including 7 micro-enterprises employing < 10 workers). Overwhelmingly dominant among large companies were producers of chemicals and finished utility forms, while small and medium enterprises included 35 producers, 13 distributors, one importer and one service provider. The companies under analysis represented the overall employment of > 30 000 workers (including approx. 1 900 at small and medium enterprises).

### 3. METHODOLOGY

The basis for the summary analysis of the impact of REACH implementation with regard to direct expenses was the development of a list of all the substances produced / imported in quantities exceeding 1 ton/ year.

Based on the data included in questionnaires provided by respondents, the total of 1232 substances were identified (944 subject to registration), including:

- 84 substances from priority lists,
- 347 substances from Annex I to Directive 67/548/EEC (29 ATP),
- 513 existing substances not included in Annex I,
- 288 substances excluded from the registration requirement, according to the REACH proposal.

The following costs have been assumed for the particular stages stipulated in the REACH proposal (for each substance):

- Pre-registration – all applications (EUR 1 000 per substance).
- Registration + annual update (depending on the tonnage range):
  - 1 – 10 tons/year – EUR 7 000 + EUR 500
  - 10 – 100 tons/year – EUR 16 000 + EUR 1 000
  - 100 – 1 000 tons/year – EUR 40 000 + EUR 4 000
  - > 1 000 tons/year – EUR 52 000 + EUR 6 000
- Testing (for some substances):
  - 1 – 10 tons/year – EUR 8 600
  - 10 – 100 tons/year – EUR 113 000
  - 100 – 1 000 tons/year – EUR 268 000
  - > 1 000 tons/year- EUR 386 000
- Authorization – EUR 55 000
- Safety Data Sheets (the price for developing and updating SDS's in Poland is assumed at EUR 150 each).

To estimate the total number of substances produced/ imported by the entire Polish chemical industry the following formulas for particular tonnage ranges were assumed:

- 1 – 10 and 10 – 100 tons/year      number of substances in questionnaires x 2
- 100 – 1 000 tons /year              number of substances in questionnaires x 1,5
- > 1 000 tons/ year                    number of substances in questionnaires x 1,1

Based on the analysis it has been estimated that in Poland:

- approx. 5 000 substances will be subject to pre-registration;
- approx. 1 680 substances will be subject to registration;  
of which:
  - 850 substances produced/ imported in the 1 – 10 tons/year range,
  - 420 in the 10 – 100 tons/year range,
  - 280 in the 100 – 1 000 tons/year range,
  - 130 in the > 1 000 tons/year range,
- approx. 900 substances will be tested,
- approx. 180 substances will be subject to the authorization procedure.

#### 4. COSTS ARISING FROM REACH IMPLEMENTATION

The costs of REACH implementation were calculated based on the method applied in the *Revised Business Impact Assessment for the Consultation Document* developed by [Risk & Policy Analysts Ltd.](#), i.e. the [RPA](#) study commissioned by the European Commission in 2003. Also the study of the European Chemicals Bureau (ECB) was used in order to determine the scope of information necessary to conduct tests and analyze the costs of studies (maximum testing requirements scenario), as proposed by KMPG/TNO in the analysis conducted for the Dutch chemical industry in 2004.

Under the best-case scenario (one substance – one registration in Poland), the cost is estimated at approx. EUR 194 million.

Under the realistic scenario (each substance is registered twice by two different entities, e.g. in the > 1 000 tons/year range and in the 1 – 10 tons/year range), the cost increases by approx. EUR 40 million to reach approx. EUR 234 million.

Under the worst-case scenario (each producer/importer registers a substance), the cost increases by EUR 72 million to approx. EUR 266 million.

The costs for producers, importers and downstream users of substances in their own and in preparations will thus be at EUR 194-266 million (taking into account the above mentioned three scenarios).

It should be noted that the above mentioned expenses are lower than those set out in the analysis developed in 2003, also at the request of the Ministry of Economy, Labour and Social Policy. This was mainly due to the different estimates of the cost of test studies. For purposes of the above analysis the estimated costs quoted in the *European Chemical News* of February 2002 were used:

- Registration – EUR 17 000
- Testing
  - range 1 – 10 tons – EUR 85 000;
  - range 10 – 1 000 tons – EUR 250 000;
  - range > 1 000 tons – EUR 325 000;
- The cost of authorization procedures – EUR 80 000.

The total cost of registration, testing and authorization procedures, estimated in the 2003 study, were EUR 340 million. Other analyses (e.g. those conducted at the time by DOW EUROPE S.A.) showed that the cost of testing substances to be put into circulation might even be higher, e.g. EUR 1 760 000 for the >100 tons/year range and EUR 840 000 for the 100 – 1 000 tons/year range.

The detailed analysis of the maximum test needs conducted by ECB (after completing the 2003 analysis for the Ministry of Economy) led to a significant reduction in the expected costs as a result of specification of the necessary scope of tests to be performed.

The application of such a procedure caused that the costs of the phase involving registration, testing and authorization (for a comparable number of substances), as estimated in this study, are at EUR 164 – 236 million (with the total cost at EUR 194-266 million). The remaining costs (approx. EUR 30 million) are, for example, the cost of developing charts of characteristics, registration of semi-finished products, etc.

Another cost component is the cost incurred by importers of articles. Such costs are estimated at approx. EUR 150 million. Their level is uncertain since it is not known specifically how the reporting procedure for that product group will look in practice.

**To sum up, the total cost of implementing REACH for the Polish chemical industry and downstream users is EUR 344 – 416 million (estimated in 2003 at EUR 340 – 600 million).**

In order to analyze the impact of REACH on particular enterprises (large, medium and small, and on selected sectors associated with the chemical industry), the following additional assumptions were made:

- The equal distribution of costs arising from the REACH requirements looks as follows:
  - 1 – 10 and 10 - 100 tons ranges – 9,5 years (maximum 11 years after system implementation);
  - 100 – 1 000 tons range – 4,5 years (maximum six years)
  - > 1 000 tons range – 1,5 year (maximum 3 years)
- For the substances bought by EU enterprises (based on the estimates rendered in the analyses of 15 countries) the following price increases were assumed within particular tonnage ranges:
  - 1 - 10 tons            - 6,3%
  - 10 – 100 tons        - 2,2 %

- 100 – 1 000 tons – 1,1 %
- > 1 000 tons – 0,5%.

The analysis shows that the increase in costs of REACH implementation for chemical plants covered by the analysis will be the following, depending on the production value (annually) (assuming equal distribution of costs over the period allowed for carrying out the registration procedure for particular tonnage ranges):

Production value < EUR 1 million	5,3 – 83,5 %
Production value EUR 1- 10 million	1,1 – 23,8 %
Production value > EUR 10 million	0,05 – 0,9 %

If the period of distribution of the costs of REACH implementation (especially with production at 1 – 100 tons) is reduced, for example, from the allowed 11 years to five years, the annual costs will automatically increase. The method of costs distribution will in each case depend on the company's policy and its ability to engage funds.

In the case of substances produced in small quantities and simultaneously representing a low unit price the cost arising from REACH may be as much as 200% of the substance value.

## **5. ANALYSIS OF THE POTENTIAL IMPACT OF REACH IMPLEMENTATION ON PARTICULAR GROUPS OF ENTERPRISES IN THE CHEMICAL INDUSTRY AND DOWNSTREAM USERS**

The analysis of the impact of REACH implementation on particular groups of enterprises was conducted based on the questionnaires supplied to the company. Each questionnaire was analyzed thoroughly according to the requirements quoted above. Taking into account the nature of production, the type of chemical substances, the production level and the cost of manufacture/ purchase the rise in manufacturing costs on an annual basis for each of the 78 enterprises was estimated.

Most of the obligations arising from the draft REACH regulation will rest with producers and importers. Downstream users will bear the cost of drafting reports on the directions for use and distribution of updated charts of characteristics, although for various reasons in Poland downstream users will probably assume a greater burden as a result of incurring the cost of registration, testing, etc. which may raise the estimates given in this report. For some substances produced or imported in small quantities (1 – 10 tons/year) the registration process handled by business entities themselves may increase the estimated costs by approx. 10%.

The Polish chemical industry is characterized by a much smaller production scale in all tonnage ranges, which increases the percentage of REACH implementation costs in relation to that industry's share in the turnover of the EU 15.

The Polish chemical industry accounts for approx. 2,4% of the EU's total chemical sector turnover. The analysis of 78 enterprises shows that the cost of REACH implementation in Poland will be significantly higher and will reach 4,8% - 6,6% (EUR 194 – 266 million in Poland compared to approx. EUR 3,6 billion in the EU), which represents a ratio 2,4% to 4,2% higher than Poland's share in EU's turnover.

A considerable impact on costs is exerted by chemical imports from non-EU countries (approx. EUR 2 billion) since registration requirements are similar as those of producers. We

estimate that the cost of REACH implementation for imported chemicals represents approx. 15% of the total cost.

The level of knowledge about chemicals, the absence of any database whether on producers or on substances they produce or use will certainly be a considerable difficulty in the information exchange, which will also significantly raise the REACH costs in Poland. As regards information collection, Poland is at the stage of collecting data for substances from priority lists (141 substances). Those data are gathered by the Bureau of the Chemical Substances and Preparations in Łódź. The Bureau also collects data on dangerous substances put into circulation. As a result, information about other producers of the same substances (except for large producers) is, in our view, marginal.

In the 15 EU countries the process of data collection, both on substances and on production levels at particular enterprises, began in 1993 and by 1996, data on both high and low tonnage chemical production had been collected. The data are stored in the (ECB) IUCLID database and presently, greatly facilitate development of analyses for particular countries of the EU 15.

The analysis conducted indicates the existence of a strict dependence between the value and type of production, and the increased cost of manufacture due to REACH. With the annual production at > EUR 10 million, the cost increase will be < 0,9% while with production at < EUR 1 million it may even exceed 80% on an annual basis.

### **5.1. Large enterprises**

The principle that “the large one will survive” since the increase in the share of costs arising from REACH will be slight (in most cases approx. 0,1% of the cost of manufacture) given a large scale of business operations applies to a large European company (e.g. with the annual turnover of at least EUR 1-2 billion), which has financial reserves and whose strategic production profile is not diversified.

Under Polish conditions, most large enterprises in the chemical sector report the annual turnover at EUR 50 – 300 million, which causes that the share of REACH costs will be significantly larger. Additionally, such company’s production is usually diversified. The

analysis of costs at 28 large industrial plants shows that only refineries and large nitrate plants would not be considerably affected by the REACH impact.

In other cases (even if the average cost increase calculated for the entire enterprise is relatively low), it may be said, analyzing particular installations, that many of them should be shut down due to the significant cost involved in REACH requirements. This will not be possible in each and every case since they may be of key significance for the remaining manufacturing operations.

The increase in costs resulting from REACH implementation in that group of enterprises as a percentage of the cost of manufacture ranges from 0,1% to 1,38%, provided that it is difficult to find a pattern whereby “the larger the enterprise the lower the share of higher costs arising from REACH”. It should be noted that if the British-Hungarian proposal is adopted (“one substance, one registration”), i.e. one registration for each substance throughout the EU by the enterprises in Poland, that share could drop by as much as 30%.

## **5.2. Small and medium enterprises**

Increase of the cost of manufacture may reach from 1,1 to > 80% annually. Important from the REACH implementation point of view is not just the volume and value of production, but also the type of substances produced/ imported. With a small scale of production, the need to obtain a permit or to perform tests even for a single substance may drastically increase the cost of manufacture.

Small and medium producers are more susceptible to the REACH impacts since the cost of registration and testing must be absorbed by a smaller production tonnage.

Some of the small and medium enterprises import raw materials from outside of the EU (approx. 20%). Those are raw materials in low tonnages; the need to register and test them may cause that imports from non-EU countries could become unprofitable. Since those are often raw materials not produced in the EU the producer will probably give up importation and discontinue production altogether.

The unit cost of registration for substances produced in quantities between 1 and 10 tons are much higher than for those produced above 10 tons.

For most small companies the emergence of obligations involved in the REACH implementation, even for a single substance side-produced by a given installation, may lead to a drastic increase in the cost of production, which in consequence may mean a collapse of the company due to its inability to bear the burdens following REACH implementation. This refers mainly to small companies which manufacture products in small tonnages and of a low value.

Such producers are usually suppliers of specialized chemicals for leather, automotive, textile or other industries.

It is obviously possible to find examples even among small enterprises, where REACH implementation would not be a significant threat. However, those are sporadic examples which may be considered “exceptions to the rule”. Their better situation is due to the fact that they manufacture high value goods in high tonnages or have a “niche” production profile. In those cases, a good market position (e.g. of a monopolist) will not be threatened by the introduction of legislation such as REACH. In the case of small enterprises, their future market situation depends strictly on what type of substances are part of their production process and what obligations arise for them from the REACH implementation.

### **5.3. Downstream users**

The implementation of REACH will have an impact not just on the chemical industry but also on the sectors which utilize the goods supplied by chemical plants. The sectors which use the substances and preparations manufactured by the chemical industry the most include textiles, electronics, automotive, etc.

Customers enforce measures aimed at minimizing the final costs of products. Raising the price of end products manufactured in a process with the use of chemicals is very difficult as a result. The competitive position of producers vis-à-vis importers who will not incur additional costs will deteriorate even more if the cost of replacing / changing the useful form of a product becomes too high. This applies in particular to the user sectors: rubber and plastics, electronic components, metallurgy, automotive parts manufacturers and textiles.

### **5.3.1. Electronic industry**

- The share of the electronic industry in the Polish economy is relatively small, less than 2%, while its sales account for less than 3% of the total sales of the Polish manufacturing industry.
- The Polish electronic industry utilizing chemicals may be expected to show the following consequences of REACH adoption:
  - increased price of imported sub-assemblies,
  - proposals at negotiations with sub-assembly suppliers to participate in the cost of registration, testing and, possibly, authorization application,
  - a switch to non-European suppliers of sub-assemblies if no registration is required for substances contained in useful goods.
- Due to the limitations on trade and application, as well as according to WEEE (Waste from Electrical and Electronic Equipment) Directive 2002/96/EC and RoHS (Restriction of the use of certain hazardous substances in electrical and electronic equipment) Directive 2002/95/EC, certain restrictive limitations will be introduced with respect to electrical and electronic products, aimed to eliminate heavy metals (including mainly lead) from those products.
- According to the RoHS Directive, new electrical and electronic equipment put on the market and subject to the WEEE Directive will not be allowed to contain six substances, namely mercury, lead, cadmium, chromium (VI) or combustibility reducing chlorinated agents such as PBB or PBDE. That restriction will apply from 1 July 2006. The Polish electronic industry must already undertake preparations to meet that requirement.
- Therefore, any changes in the production of printed circuits will stem from the provisions adopted by the sector legislation (RoHS Directive) rather than from the introduction of REACH.

### **5.3.2. Textile industry**

- The paper has also analyzed textile enterprises. All of them buy chemical raw materials for their manufacturing needs (to dye yarns and knitting wools in dye-houses).
- In bleaching or dyeing, as well as in softening processes the textile industry uses mainly acetic acid, sodium hydrate, sodium sulphate, sodium carbonate, sodium hyposulfite, KDK acid, hydrochloric acid, formic acid. Textile industry plants also buy finished synthetic organic dyes.

- The domestic chemical raw materials market for the textile industry may shrink rapidly in the future while raw materials from EU countries, where the market situation is not at its best either, may become significantly more expensive.
- The cost of raw materials purchases (from the EU) will grow on the average by approx. 6%, which translates into a 0,1% to 0,7% growth of the cost of manufacture.
- European analyses indicate that over the 11 year's period of implementation of the REACH regulation their impact on the textile industry will result in a suspension of operations or a reduction of sale volumes to the order of 5%.

### **5.3.3. Automotive industry**

- The automotive industry is characterized by a significant amount of engaged foreign capital. That sector's situation is, therefore, similar to that of the electronics industry. Poland manufactures vehicles and sub-assemblies based on useful goods produced usually abroad, both in the EU and in non-EU countries. The use of chemical substances and preparations begins at the top of the "supply chain", at the stage of manufacture of components for sub-assemblies, often in cooperation with research and development centres operating at automotive concerns. It must be allowed that similar to the electronics industry, further users may have to register a substance contained in a sub-assembly as a useful good in the case where its contents exceeds one ton annually and there are premises to believe that the substance might be released from the product during its normal operation and use.
- The study analyzed the impact of REACH on several chemical plants producing batteries, glues, paints and varnishes for the automotive industry. The growth in the share of costs arising from REACH in the cost of manufacture is significant, usually a few percentage points (3-5%).
- Particularly important for the automotive industry are limitations on sale and use. The substances which are withdrawn based on the applicable provisions include cadmium, and since the beginning of 2005, lead carbonate and lead sulphate, used as ingredients of e.g. sub-coat paints for priming vehicle bodies.

## 6. INNOVATION AND COMPETITIVENESS

One of the essential requirements for competing effectively in the market is company's innovation. Innovation is understood as the ability to create new and improve existing products/ processes, management and organization systems. Innovation also means practical application of the results of scientific research, research and development work, innovative projects, new concepts, improvements, ideas and inventions.

In a medium-term perspective, the impact of REACH on innovation may be adverse. In particular, the REACH-related overheads may result in a periodic limitation of research and development potential. In a longer run, an opportunity for companies is to engage in manufacturing of new products. The impact of REACH implementation will consist of a greater chance for new substances to appear on the European market. This will create new opportunities for small and medium enterprises which are usually flexible and capable of filling in market niches.

The current innovation level in the Polish chemical industry is relatively low in most cases. As a result, it may be said with certainty that putting REACH into effect will deepen the crisis observed in the area of innovation. Each enterprise, including in particular in the chemical sector, is subject to the rule of interconnection. If a legal obligation arises to incur certain costs the "investment" in REACH will proceed at the expense of expenditures for research and development.

There is no doubt that the increase in product prices and the lower expenditures for research and development will result in lower competitiveness of the chemical industry.

Polish companies wishing to meet new competitive requirements must reach for the innovation patterns developed in the EU 15. However, in order to do so they must have the necessary funds and enjoy the support of the state policies in that regard. The EU 15 allocate 3,5 times more funds to research than the total sales of the entire Polish chemical industry. According to the GUS (Central Statistical Office) data (2003), the allocations to innovation (development) activities in Poland were the following: PLN 227,1 million (PLN 31,5 billion in sales) in chemicals production, PLN 40 million (PLN 23 billion in sales) in rubber and

plastics production. An opportunity for improvement in that sphere is the option for Polish companies to seek EU funding for innovative research. However, they will need professional assistance in drafting applications for such funding.

## **7. ADAPTATION OF POLISH LABORATORIES TO (GLP) GOOD LABORATORY PRACTICE REQUIREMENTS**

Presently, only two centres in Poland, accredited under the Good Laboratory Practice system, offer full scope tests required by the proposed REACH regulation:

- In toxicology tests they may evaluate yearly approx. 50 products with the tonnage of > 1 ton and one product with the tonnage of > 1 000 tons.
- In ecotoxicology tests they may evaluate yearly approx. 20 products with the tonnage of > 10 tons and approx. 10 products with the tonnage of > 1 000 tons.

Obtaining the status of a certified laboratory involves a lengthy, labour and cost-intensive procedure. Therefore, we cannot expect that their number will shortly increase to a level where all the tests necessary for risk evaluations could be performed in Poland. The need to have tests performed outside of Poland may result in not just additional costs but also in a complete elimination of certain chemical plants from the European Union market. The cost of setting up one test station is approx. PLN 1,2 million. We estimate that by the time of REACH operation in Poland, around 10 such laboratories should emerge in Poland.

## **8. LOSS OF JOBS**

The preliminary evaluation of the impact of REACH implementation conducted in 2003 estimated that the system's entry into force in its proposed form may result in a significant loss of jobs in Poland (due to the high vulnerability of the analyzed group of enterprises). A more in-depth analysis indicates that where non-profitable installations are shut down at large chemical plants the employment levels might drop by up to 3%, while at small enterprises, incapable of bearing the burden of REACH implementation, employment may be reduced significantly (even by 30%). On the other hand, such enterprises (especially small and medium ones) may change their production profile or the nature of operations more easily and faster, and thus mitigate the risk.

## **9. EVALUATION OF THE SITUATION IN NEW MEMBER STATES**

The study prepared by ECORYS of the Netherlands, entitled *EU2004REACH The Impact of REACH. Overview of 36 studies on the impact of the new EU chemicals policy (REACH) on society and business* (also analysis performed in 2003 at the request of the Ministry of Economy) states, for example, that:

“In comparison with the abilities of the EU 15, the scale of the chemical industry in the ten new member states is small. However, the chemical industry plays a significant role in the economic structure of some of those countries. The size of an average company in new member states is smaller than in the EU 15 and its competitive position is often uncertain. For those companies, the cost of REACH implementation is significant as they sell goods in smaller quantities than the EU 15 companies. That means that it is more difficult to leverage such costs by the product price.

New member states have much less experience in implementing complex Community legislation on chemical substances management than the EU 15. New member states have so far (and still are) busy implementing the provisions in effect in the EU, and will soon have to implement REACH. In order to ensure its smooth introduction full and correct information must be prepared in time.” There is an urgent need to create databases, to disseminate information on the proposed legislative amendments and obligations of enterprises arising from those amendments, to create consultancy and information points, etc.

## 10. SUMMARY AND CONCLUSIONS

1. The most important factors resulting in a much higher increase in the costs of REACH implementation in Poland (approx. 0,4% of the annual sales) compared to those estimated for most EU 15 countries (approx. 0,1%) are:
  - smaller and diversified production scale,
  - negative trade balance (imports/ exports),
  - low innovation (e.g. expenditures for research and development),
  - insufficient knowledge (e.g. limited access to data on producers and production).
  
2. If the British-Hungarian proposal of “one substance one registration” (one registration for each substance throughout the EU) is adopted the above percentage may be reduced. On the other hand, that method may result in the dependence of Polish enterprises on large EU 15 companies which have the funds and ability to be the first to register substances and then to dictate the terms to other producers. The above principle may result in the absence of a partner selection and in more difficult negotiations on the terms of cooperation (especially for small and medium enterprises).
  
3. The basic threats for Polish enterprises arising from REACH implementation are considered to be:
  - Jobs reduction and lower sales revenues as a result of discontinuation of certain production due to the high burden of REACH requirements. This refers both to small and medium enterprises, and to certain installations at large chemical plants;
  - Limitation or complete cancellation of research and development work at the companies which will have to allocate funds to meet the REACH requirements. This will further reduce the competitiveness of Polish chemical companies in the international market, and may even lead to their elimination from that market.
  
4. Raw material purchases for production are often made in Poland via importers (trading in chemicals) and in many cases it is difficult to identify, for example, ingredients of a product, let alone to work out a safety data sheets.

5. It will be necessary to educate a group of specialists to assist enterprises in the drafting of registration documents.
6. It may certainly be assumed that most small enterprises will be forced to commission Chemical Safety Assessment (required in the registration process) from specialized entities or consulting institutions. For that reason, there will be additional indirect expenses, at present difficult to estimate.
7. Enterprises may and should also engage in preparations, for example, by:
  - Preparing a list of substances produced / imported, and subject to REACH requirements.
  - Collecting available physicochemical, toxicological and ecotoxicological data for those substances, both in their own and in preparations.
  - Collecting information on the directions of applications of the substances produced at an enterprise.
  - Collecting data on other producers (potential partners to form a consortium).
8. In the period preceding the adoption of REACH each enterprise may analyze its activities, which should provide answers to the following questions:
  - What will be the cost of meeting the requirements of REACH?
  - Will it be necessary to discontinue production of certain chemicals?
  - What may be the potential losses involved?
  - Is it possible to replace the raw materials currently used by safer substitutes?
  - How will discontinuation of unprofitable production affect the size of employment?
9. As a result of REACH implementation, the provisions on chemicals control and management will become uniform throughout the European market. This will be beneficial for producers, however, only for those who adapt to the new legislation as they come into effect, are aware of the changes and have access to various databases on chemical substances, preparations and products.
10. There is an urgent need to create an interactive online database of substances products and goods, and producers. Eventually, the data on Polish chemical producers should be

included in the ESIS (IUCLID) database on the WebPage of the European Chemicals Bureau, just as for the producers from the EU 15. This would be an important path toward creating the options for joint registration, i.e. formation of consortia, which might significantly reduce the cost of REACH implementation. Unfortunately, the experience to date indicates that in order for such a project to be put into place an administrative order (a regulation of the competent ministers for health and economy) would be necessary. We estimate the cost of database formation and maintenance at approx. EUR 1 million.

11. The database might be set up at the *Prof. Ignacy Mościcki* Institute of Industrial Chemistry where a large volume of information on producers / importers and users of 1232 substances was accumulated at the time of drafting the first analysis. Swedes say in their report on the impact of REACH on the industry that the annual maintenance cost of their products database is approx. EUR 700 000 - 800 000.
12. It is necessary to urgently take action in order to disseminate information about REACH, especially at small and medium enterprises, through organization of seminars and training, consultancy points, etc. It will be necessary to educate a group of specialists to assist enterprises in drafting registration documents. It is estimated that in Poland (in the period prior to REACH implementation and during its operation) it is necessary to allocate approx. EUR 50 million to that purpose (the Dutch study estimates the cost of disseminating information in the Netherlands at EUR 250 million). Additionally, the Polish Government should, in consultation with other governments of the EU 10, also make efforts to ensure that the European Union provides financial support for REACH implementation in those countries.
13. The prompt emergence of new GLP laboratories in Poland may help reduce the cost of tests, and hence the costs incurred for meeting REACH requirements. However, this would require significant financial expenditures; setting up one station costs approx. PLN 1,2 million. The laboratories could also offer their services to entities from other countries. Until REACH operation in Poland, approx. 10 such laboratories should emerge. This will require expenditures of around EUR 3 million for apparatus and around EUR 0,5 million in expenses to be incurred for laboratories accreditation.

14. In the initial period of its operation REACH will have a greater impact on importers than on producers. Importers will begin withdrawing certain chemicals from the market much earlier than the producers since their activities are more dependent on current cashflow. The process will also probably be caused by a more limited access to entities performing tests and better ability to promptly change the operating profile.
15. The effects of REACH implementation will include introduction of new substances (substitutes) less hazardous to human health and to the environment, which should improve the chances for the continued operations of some small and medium enterprises. They may change their production profile or objects relatively easily. It will also be easier for them to find market niches.
16. In many cases, importers (both enterprises importing chemicals and producers buying raw materials for production) will have to seek suppliers from the EU since the costs involved in the registration procedure (analogous to that of producers) will cause imports to be unprofitable.
17. Upon implementation of new chemicals policies the operating costs of institutions responsible for health and environment protection in Poland will increase. This will also result in expenses, to be covered from the state budget, in connection with the additional responsibilities imposed and higher employment at entities such as:
- the Bureau for Chemical Substances and Preparations,
  - the Sanitary Inspection,
  - customs authorities,
  - the Environmental Inspection,
  - the Trade Inspection,
  - the Labour Inspection.

The estimated costs (annual expenses) are around EUR 10 million.

Moreover, it will be necessary to incur expenditures for information, training activities, creation of databases and research laboratories, training and operation of government and industrial administration services.

18. There may be perturbations with the introduction of successive limitations on the application and trade in substances posing a significant hazard to human health and the

environment. Presently, subject to such restrictions (even prohibitions) are substances such as nonylofenol (surface-active agents in preparations intended for cleaning textiles and leathers, emulsifiers, etc.), azo dyes for dyeing textiles, leather and paper products, lead (printed circuits), C<sub>10</sub> – C<sub>13</sub> chlorinated hydrocarbons (degreasing of hides, cadmium (for dyeing resins, packaging, as an ingredient of sub-coat paints for priming bodies), lead carbonate and lead sulphate used as ingredients of paints and other preparations.

19. The process of REACH implementation will (most probably) coincide with the introduction of the Global Harmonised System (GHS) under the WTO framework; the system of substances classification and labelling will change completely. This will result in additional costs in the EU. For the new member states another change of the legal framework for chemicals may prove difficult to implement, both from the point of view of costs and the necessary time and logistics required for the undertaking.
20. As a result of REACH implementation, there will be better access to information about chemicals and the directions of their application. In consequences, enterprises will be better able to evaluate the risk posed for human health or the environment by the substances they produce or use in their activities. They will also be able to manage chemicals more responsibly and safely. In effect, this should improve the profile and credibility of the chemical sector.
21. REACH implementation should result in a reduced exposure of workers, as well as the population at large and the environment, to the operation of hazardous chemical substances, and thus in a limitation of the negative impact of chemicals on human health or the environment. Obtaining visible effects in the form of fewer allergies, respiratory problems, cancer incidence, which are a serious problem and require huge expenses (treatment, absence from work, large number of disability pensions caused by occupational diseases) will require many years, however, there is not doubt that that factor should be treated as an important asset of the proposed new chemical policy.
22. In connection with the work underway on the EU forum it is necessary to make further efforts to make sure that the requirements posed for enterprises are mitigated enough to allow them to operate without difficulty and to compete in world markets. The costs and

effects presented in this study will have to be verified after publication of the final legal text of REACH regulation.

23. It is necessary to support the introduction of a prioritizing mechanism, i.e. selection of substances posing a high risk to human health or the environment for a full evaluation. In many cases, this would help eliminate the cost of risk evaluation, for example, for substances posing smaller hazards only because they are put on the market in high tonnages, which results in a potentially high exposure.