



International Center for Economic Growth
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The Expected Effects of the EU Accession on the Machinery Industry in Poland

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1. Introduction

Machinery industry is defined in narrow and broad sense. In broad sense machinery covers all engineering and electro - machinery activities, namely manufacture of machinery and equipment (NACE 29), manufacture of office machinery and computers (NACE 30), manufacture of electrical machinery and apparatus (NACE 31), Manufacture of radio, television and communication equipment and apparatus (NACE 32) and manufacture of medical, precision and optical instruments, watches and clocks, (NACE 33). In narrow sense machinery industry is limited to manufacture of machinery and equipment (NACE 29). This report uses narrow definition. Basic data for other machinery industries and short commentary on developments is given in the appendix.

Machinery industry is a traditional, medium sized industry of Polish manufacturing. The share of revenue from sales in this industry is over 5 percent and is growing. The sector (NACE code 29) is not homogenous since it includes various kinds of machinery and equipment, tractors for agriculture and forestry, households' equipment, as well as arms and munitions. This industry is characterised by growing capital intensity and diminishing labour intensity.

Integration with the European Union will be an important challenge for the entire Polish economy, but manufacturing industry, which will directly face open competition on the single European market, needs special effort. In Poland, many manufacturing industries, including manufacture of machinery and equipment, due to earlier market liberalisation, have been successfully competing on the EU market for many years.

Implementation of EU regulations turned out to be the most important issues for the manufacture of machinery and equipment during preparation process for the EU accession. Microeconomic restructuring of the sector was another crucial undertaking.

Capital needs, necessary for more intensive investment process including R&D expenditures, are the most urgent problem for the sector. From the technological point of view manufactures of machinery and equipment is characterised by growing dependence on advanced technologies. Fast modernisation of production equipment in the sector is a precondition for its further development.

2. General characteristics of the sector

According to the NACE classification, machinery industry in Poland is classified as two digits sector: 29 manufactures of machinery and equipment n.e.c. The sector contains 23 four digits of NACE classes (branches). This industry produces machinery of general use, machinery of special use (for various sectors), households' equipment, as well as arms and munitions. Products of the sector are both investment and consumption goods, however, proportion of investment goods is much higher.

In Poland, machinery and equipment was produced by 12 413 companies in 2001, of which only 308 were state owned. Small and medium sized enterprises dominated the machinery sector. 746 firms employed more than 49 employees and 147 firms employed more than 250 employees.

Companies in machinery industry are in 98 percent private. Domestic capital dominates in private sector. Number of foreign companies (100 percent of foreign ownership) is 388 and 206 companies are of mixed ownership, domestic and foreign. Share of foreign companies in sales and value added generated in the sector reaches 20 percent, whereas in other manufacturing industries such share is close to 40 percent.

Number of employees in manufactures of machinery and equipment is systematically diminishing in Poland. In 2001, number of employees fell to 202 thousand, which is almost 10 percent less than in previous year. In comparison to 1995, number of employees has diminished by one third. The process of rapid labour outflow from the machinery sector can be explained by two main factors. A continuo restructuring is one factor, growing labour productivity, due to better general management and competitiveness pressure, is another factor. Both processes are not completed yet and one may expect further reduction of labour force in machinery sector in Poland, however, the pace of change may be slower than experienced so far. In the case of possible sector expansion after the EU accession, growth of employment in the sector can not be fully excluded, it may even be expected.

Level of production concentration among companies employing more than 49 employees is lower than in the entire manufacturing industry and is systematically diminishing. According to the concentration coefficient¹ published by the Central Statistical Office (GUS), concentration coefficient in the manufacture of machinery and equipment fell down from 0,681 in 1995 to 0,604 in 2001. Corresponding coefficients for all manufacturing industries are 0,748 in 1995 and 0,683 in 2001. In Polish industry a shift from large state owned companies to smaller production units is a continuous process and creation of small and medium-sized companies will be observed for a long time to come. This process in machinery industry is especially intensive.

The machinery sector is involved in R&D activities. One tenth of all expenditures on innovation activity in Polish manufacturing was spent in the machinery sector. Employment in innovation activities higher than in the machinery industry was only in chemical industry. Consequently, the share of sales due to technologically new and improved products in revenue from sales was much higher than in entire manufacturing industry in the nineties (65.5 versus 24.7 percent in 1999 and 29 versus 20.8 percent in 2001).

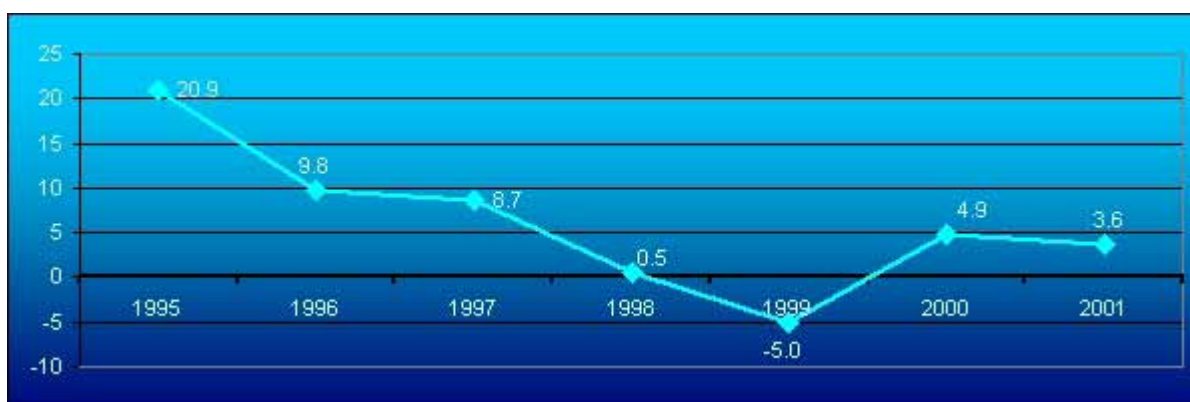
¹ Concentration coefficient is derived from the Lorenz curve of concentration.

3. The impact of integration on the manufacture of machinery in Poland

3.1 Pace of the sector development

The accelerated growth of production in the machinery industry took place in the mid nineties. In 1995, revenue from sales grew more than twenty percent as compared to the previous year. In the two following years the real growth rate of sales was still high. In 1998 this tendency stopped and in 1999 a five-percent decline in sales was observed. Since 2000 the situation has improved and sales in the sector continues to grow. First estimations of the Central Statistical Office bring growth rate of 3.1 percent in 2002.

Graph 1: Real growth rates of revenue from sales in manufacture of machinery and equipment, 1995 – 2001 (in percent)



Source Central Statistical Office (GUS)

Explanation of such a pattern of sales growth lies in three factors. The first factor is a change in business cycles in Poland, which is responsible for the decline of sales in 1999. In 1998 and 1999 decline of sales was observed in entire Polish manufacturing. The second factor is a positive result of restructuring activity in the sector, including privatisation, which was especially intensive between 1993 and 1996. The third one is export growth observed in 2001 (156 percent) and similar growth is expected in 2002.

Graph 2 Revenue from sales of the manufacture of machinery and equipment, 1995 – 2001 (current prices, PLN billion)



Source Central Statistical Office (GUS)

A growth effect of the EU accession on the Polish machinery industry can be expected in a short run. This will result from both the strong domestic demand that will appear with expected macroeconomic recovery in 2003 and from the easier access to the enlarged European market when accession is implemented. Growing quality of domestically produced machinery may change approach of Polish investors who normally prefer imported machinery to domestically produced.

In a long run one should foresee two basic scenarios. In the first scenario, the growth of Polish machinery industry may accelerate, due to comparative advantage resulting from relatively low labour cost combined with relatively high technical standards of products. Labour cost in Poland in the light of growing labour productivity (sales per employee) should increase international competitiveness of the sector. In the case when growth acceleration will contribute to creating high attractiveness of the sector, it will be possible to gain funds for intensive investment process and further strengthening R&D activity. In such scenario the sector will expand and enlarge its share in manufacturing sales.

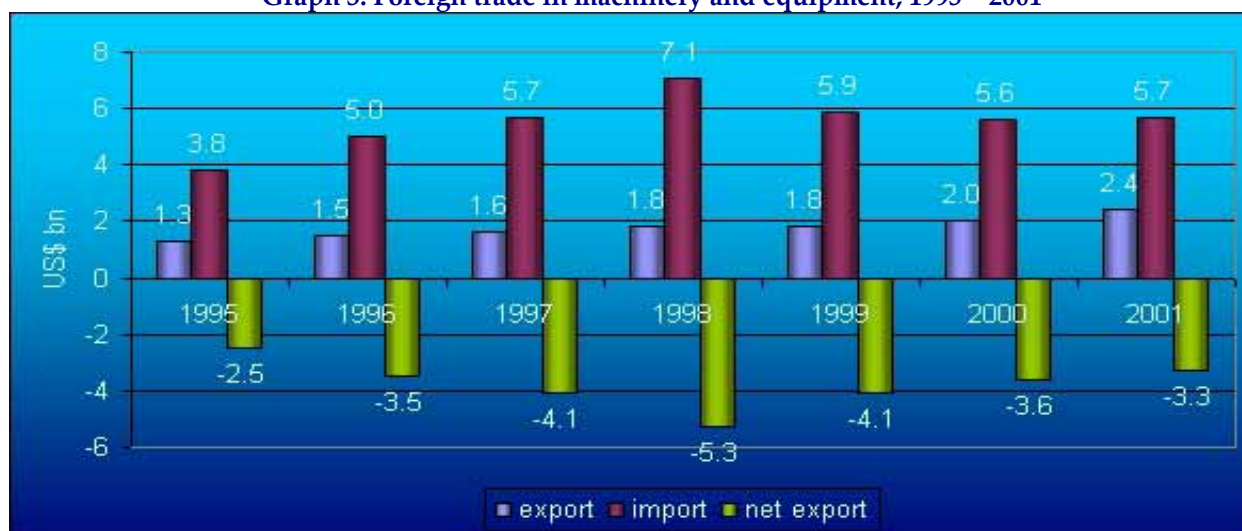
In the second and less probable long term scenario, growth acceleration will not be sufficient for financing intensive investment activities. In such case the sector will keep its share in manufacturing industry since the probability of sales decline is low. Tradition and well-established domestic co-operation ties and contracts will help to survive companies in this industry.

3.2. Foreign trade

During Polish transformation high demand for machinery and equipment is natural. National economy needs new investment goods in order to modernise its production apparatus. Since imported machinery traditionally was of better quality, Polish investors prefer imported machinery to domestically produced machinery. Such stereotype prevailed up to the mid nineties, until domestic producers improved quality of their products.

The above described mechanism explains why trade deficit in machinery and equipment has traditionally been permanently negative in Poland. The ratio of net export to total export was higher than one in the nineties reaching three in 1998. Starting from 1999 the ratio diminished. In 2001, such ratio went down to 1.3, but still it is higher than one. One can, however expect that this ratio soon (in two – three years) will be below one.

Graph 3. Foreign trade in machinery and equipment, 1995 – 2001



Source Central Statistical Office (GUS)

Almost 42 percent of machinery and equipment produced in Poland is exported. In 2001, 69.3 percent of Polish export was located on the European Union markets, more than in 2000, (67.6). Very few Polish industrial activities experience such high level of export share in production.

Another important export direction of Polish manufacturing of machinery and equipment is Eastern and Central Europe.

In 2000, 78.7 percent of machinery and equipment import to Poland originated from the European Union. Prospects for diminishing the size of net export and reaching net export / export ratio below 1 are realistic and probably will be achieved after the EU accession.

To support the above opinion one should use the following reasoning:

- Since 1993 a tendency of diminishing the size of imports to Poland and net exports is strong,
- Effects of heavy investment and R&D expenditures in the mid nineties in manufacturing of machinery and equipment will bring fruits,
- After the EU accession Polish producers will experience facilitation in the access to the traditional and new EU markets,
- Machinery and equipment industry as an industry with long tradition, good technological standards and relatively cheap labour costs may reveal its comparative advantage on the EU market.

3.3. Foreign investment

Machinery and equipment industry turned out to be an activity where domestic capital plays more important role than foreign capital. Degree of penetration of foreign direct investment in this industry is weaker than in other manufacturing industries.

Polish official statistics do not present distribution of economic results between domestic and foreign capital on the two digits level of the NACE classification. Table 1. below presents such data compiled by a special order for the EU financed research project². The data covers companies operating according to the Polish Trade Code (*Prawo Handlowe*) which means that companies run by physical persons are not taken into account. Companies run by physical persons are normally small or sometimes medium-sized enterprises. Foreign companies are those with at least 10 percent of foreign participation.

² Phare ACE project P97-8112-R "Impact of foreign direct investment on the international competitiveness of CEEC manufacturing and EU enlargement".

Table 1. Share of foreign capital versus domestic capital in Polish manufacturing, selected indicators, in percent

Machinery and equipment						
	Number of companies	Sales	Export	Value added	Employment	Investment outlays
1993	10.7	8.1	16.9	8.7	3.8	N.A.
1994	11.9	6.4	10.2	5.4	4.6	10.0
1995	15.6	12.6	18.9	12.4	6.6	22.4
1996	15.9	14.8	26.3	13.9	7.6	26.5
1997	18.0	16.0	26.4	14.4	8.5	35.2
1998	18.3	18.5	35.8	16.1	11.4	33.8
Total manufacturing						
	Number of companies	Sales	Export	Value added	Employment	Investment outlays
1993	18.5	13.7	34.6	11.3	9.7	N.A.
1994	20.9	16.6	25.3	14.7	12.0	30.6
1995	24.0	22.9	32.6	20.2	16.4	41.0
1996	25.1	31.7	39.5	27.8	20.2	45.6
1997	25.8	35.4	44.9	31.3	23.3	49.9
1998	26.4	40.0	52.3	35.2	26.0	51.0

Source: WIIW database for CEEC, Vienna (Vienna Institute for International Comparative Studies)

Presented data covers period 1993 – 1998. Polish privatisation and inflow of foreign capital after 1998 came to a slower pace than in the earlier years. For these reasons 1993 –1998 data can be considered as still adequate.

Several conclusions can be derived from the above statistics.

First, foreign capital penetration in machinery industry is weaker than, on average, in other manufacturing industries in Poland. It can be said that foreign presence in machinery industry accounts, roughly speaking, for a half of manufacturing average, however, this proportion differs between presented variables. Foreign companies producing machinery in Poland are smaller than companies in other manufacturing activities in terms of sales and employment. Investment activity is higher than in other industries.

Second, performance of foreign companies is different from Polish companies: they export more, invest more and experience higher labour productivity. Surprisingly, value added is relatively lower than in Polish companies. The latter can be explained by a shorter period of operating needed for start-up businesses. In short, foreign investment companies perform slightly better than domestic companies.

Third, the pace of growth of FDI in machinery industry is slower than in other manufacturing industries. One may explain this by a strong position of domestic sector and by difficulties with entries to a difficult market.

Developments in 1990 – 2002 probably did not change much presented situation. It can be therefore concluded that in the machinery industry dominates domestic companies and such situation, which is not typical for other manufacturing will continue to persist. The European integration may change a little in such situation. Better performance of foreign companies brings positive effects on domestic companies activity.

3.4. Labour market

Economic transformation in Poland required restructuring of industrial companies. Restructuring normally means making companies economically efficient by reducing and eliminating other activities and services attached to post-socialist companies, rather than reducing the main (core) activity. It often means reduction in number of employees in other activities of a company (construction and repair services, transport units, social facilities), but also means a change in employment structure connected with the main activity. Better educated or better skilled workers replace less skilled and unskilled workers. Experienced labour force normally is kept in companies. High unemployment in Poland (18 percent in May 2003) creates pressure for increasing labour productivity of employed workers. Modernisation of production equipment or facilities, new production techniques, new and more efficient organisation of work and management techniques are other factors contributing to labour force reduction in machinery industry.

Restructuring of companies was responsible for systematic diminishing the number of employees in manufactures of machinery and equipment (graph 4). In 2001, number of employees fell to 202 thousand and was almost 10 percent lower than in the previous year. In comparison to 1995 the number of employees has diminished by one third. The process of rapid labour outflow from the machinery sector can be explained by three main factors (processes). Continuous restructuring is one factor and the most important factor. Growing labour productivity due to better general management and competitiveness pressure is a second factor. Third factor is connected to the effects of intensive R&D activities. All three processes are not completed yet and one may expect further reduction of labour force in machinery sector in Poland, however, the pace of change may be slower. In the case of possible sector expansion after soon EU accession, growth of employment in the sector can not be fully excluded.

Graph 4. Number of employees in Polish machinery sector ('000)



Source: Central Statistical Office (GUS)

In 2001, the largest share in employment among branches of the machinery sector was in manufacture of machinery for coal mining, extraction activity and construction, which employed 32 thousand persons, almost 16 percent of all employed in the machinery industry. The second largest branch was machine tools industry (19 thousand – 9 percent). The smallest branches employed several hundred employees.

Like most industrial sectors, machinery industry in Poland have been deeply restructured in the mid nineties. Labour force was reduced and labour productivity grew. With expected production growth one should expect either stabilisation of labour force employment in this sector, or its slight growth depending on the pace of growth in the machinery industry.

3.5. Institutional regulations

Adapting Polish legislation on machine-building industry to the EU requirements

The European Union legislation on the machine-building industry issues is comprised by so called **New Approach** to technical harmonisation and standards. The New Approach aims at eliminating one of the most persistent barriers in free movement of goods on the common market – differences in technical regulations in different Member States. The harmonisation method applied at the beginning, based on issuing legal documents providing details on the technical requirements, turned out to be very slow and inefficient.

In its Resolution of May 7, 1985 the Council of Europe stipulates that the main goal of the New Approach Directives is to eliminate the barriers in trade between the Member States. Moreover, as was decided, the movement of goods within the Community shall not entail decreasing the established and accepted level of protection in the Member States. The Resolution defines the New Approach main guidelines for the European technical legislation.

The New Approach Directives provide only main requirements for general issues concerning big product groups. The principal subjects treated are product safety, health and environmental protection.

The goods manufactured in a way that meets basic requirements of the Directives may be sold all over the European Union. The product conformity with the requirements is evaluated by means of procedure established in the Council Resolution of December 21, 1989 on a global approach to conformity assessment.

The essence of the New Approach is based on the following rules:

- only the basic requirements related to safety, health and environmental protection are harmonised,
- the product which meets the requirements and bears the CE mark may be placed on the market of any Member State,
- it is assumed that the product meets basic requirements when it is manufactured according to relevant harmonised technical standards (so called EN standards)

The main function of the New Approach Directives is to assure that the goods are designed and made as necessary, that they meet the goal they are bought and sold for and that all the possible safety measures were taken into account, so as not to risk life and health of the users.

As far as the safety is concerned, the Directives differ one from the other in the details they provide. They never include detailed requirements – those being defined in the standards elaborated by standardisation

units. The Directives provide only guidelines, which of the standards need to be met in order to have the product consistent with the Directive.

As far as the administrative requirements are concerned the Directives define what are the producer's obligations to be met in order to obtain the CE mark, confirming the consistency with the technical Directive.

There is 26 New Approach Directives, out of which two concern directly the machine-building industry. Those are:

- Council Directive of June 14, 1989 on the approximation of the laws of the Member States relating to machinery (89/392/EEC) – Machinery Directive,
- Council Directive of February 19, 1973 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (73/23/EEC) – Low Voltage Directive

Machinery directive

The Machinery Directive provides general provisions, as consistent with the New Approach, on the issues related to the production and circulation of machines. It comprises the following issues:

1. Placing machines on the market and free circulation of machines
2. Conformity assessment procedures
3. CE mark
4. Basic safety and health protection requirements imposed to machine design and manufacturing

Moreover, the Directive provides the provisions concerning basic safety requirements for some categories of machines, such as food processing machines, portable manual devices, woodworking machines, mining machines and machines intended, among others, for lifting and transporting people.

As provided by the Machinery Directive the machines may be placed on the market on the condition that:

- they meet the basic requirements related to health protection and general safety,
- they have undergone the proper conformity assessment procedure confirming that they meet the Machinery Directive requirements,
- they were granted the CE declaration of conformity or the manufacturer's declaration,
- they bear the CE mark,
- they are safe.

The most important of the technical requirements are the ones called **harmonised standards**. Those are the standards elaborated and established by the European standardisation bodies. They provide details on the essential requirements included in the Machinery Directive. The harmonised standards define the level of technical safety that may be accepted. If any manufacturer applies them fully, the goods he produces are considered to be consistent with the Directive main safety requirements.

If the machine is manufactured in conformity with the harmonised standards, comprising all the essential safety requirements imposed to the given machine, the producer may benefit from the *presumption of conformity privilege*, which means that the product is considered consistent with the essential requirements included in the Directive. However, this does not release the producer from the obligation to undergo the

relevant conformity assessment procedure, though the procedure may be simplified. In case of benefiting from the privilege the producer needs to present all the necessary documents proving that his product is consistent with the harmonised standards.

The harmonised standards are not compulsory. In any case the producer may apply other means to prove consistency with the essential requirements of the Directive. Nevertheless, in such a case it is necessary to achieve the safety level at least equal to the level imposed by the harmonised standards.

The list of harmonised standards is published in the European Union Official Journal, while the list of Polish standards transposing the provisions of the harmonised standards is to be officially published by the appointed body, as soon as the provisions of the Directive are included in the Polish legislation.

As stipulated by the European Union legislation, the assessment of the machine conformity shall be made by the producer himself, by issuing the CE declaration of conformity. It has a form of document issued by the producer or his authorised representative (in the case of the machines imported from the non-member countries), in which he declares that the machines meet all the essential requirements included in the Directive and related to the health protection and safety. The document certifies at the same time that the product has undergone the conformity assessment procedure. After concluding this action the producer shall mark the machine with the CE mark. The entire technical documentation of the machine shall be available in the producer's seat?.

In the case of some types of machines, the declaration of conformity issued by the producer is not enough; the conformity assessment procedure shall be followed in presence of the third party. The list of such machines is included in the annex IV to the Machinery Directive. In such a case, so called **notified units** shall take part in the conformity assessment procedure. The notified units are the bodies assigned by one of the Member States, competent to perform all the tasks related to the conformity assessment procedure. The notification is the act of giving official notice to the European Commission by the relevant Member State on designating given research and development unit to run such assessments.

In the case the producer of the machine referred to in the annex IV to the Directive declares the complete conformity of his product with the harmonised standards, he shall, at the stage of designing the machine, provide the notified unit with the entire technical documentation, applying for checking whether the standards have been applied properly and for issuing so called suitability certificate. He may also send the documentation accompanied with the machine asking for testing it and issuing the conformity certificate. The second and third possibility seem proper for the producers who are not convinced about their assessment capacity. In such a case, the producer is still responsible for the conformity of the machines he produces with the requirements of the Directive.

Polish legislation

In the Association Agreement concluded by Poland with the European Union, in force from February 1994, Poland undertakes, among others:

- to comply with the technical regulations and Community standards and with the European standards related to the quality of the manufactured goods, agricultural products and foodstuffs,
- to support application of Community technical regulations, European standards and the conformity assessment procedures,
- to conclude, if appropriate, contracts on mutual recognition in these domains.

As a result of the Polish application of those provisions:

- in July 1998 the Agreement on the Protocol on European Conformity Assessment (PECAA) was concluded and entered into force,
- the Act of July 22, 1999 on the Amendments to the Act on Research and Certification entered into force (it established the producer's declaration of conformity).

The Polish legal act regulating the issues related to the machine safety is the Act of April 28, 2000 on the Conformity Assessment System, Accreditation and Amendments to Some Acts (Polish Official Journal No 43, item 489). The Act aimed at:

- eliminating any risk caused by the products to their users, consumers, property or environment,
- eliminating technical barriers in trade,
- creating structures necessary for proper product assessment.

In order to meet those objectives the Act establishes relevant conformity assessment system, national accreditation³ and notification system and adapts to them the remaining national regulations.

One of the main provisions of the Act is to authorise the Council of Ministers (*Rada Ministrów*) to issue dispositions implementing the provisions of the European Union Directives (including the Machinery Directive). Thanks to a new legal regulation such disposition may concern many sectors of economy, to which relate the requirements concerning the machinery safety. At the same time the Act provides the structural framework in a form of system of accrediting the conformity assessment units. Following new European trends, the notified units are to be accredited, despite the fact that in the European system it is not required but only advised.

Implementing in Poland the European law and systems related to accreditation and notification will enable to formally notify Polish units in the European Union, which is expected by both the conformity assessment units and Polish producers exporting their goods to the European Union countries. The exporters are to rely at the moment on the Community notified units.

The Act mentioned above enabled to implement the provisions of the Machinery Directive to the Polish law by means of the Council of Ministers Disposition, adopted on July 3, 2001 (Polish Official Journal No 127, item 1391). The Disposition enters into force on January 1, 2003, except the rules on marking the goods with CE mark, which are to enter into force on the day of Polish accession to the European Union. The Disposition does not transpose all the rules of the Directive, or is not a direct transposition of its contents, still at an early stage of drafting it the proposal has been evaluated by the European Commission experts and considered a successful attempt of implementing the European legislation.

³ Accreditation is a formal recognition by the national accreditation unit the competence of the certifying unit. In Poland this is to be performed by the Polish Centre for Accreditation.

As soon as Poland becomes a member of the European Union, only the machines meeting the requirements of the Disposition will be allowed to be placed on the Polish market. Ensuring machine safety remains within the range of responsibility of the producer or his authorised representative in any of the Member States, including Poland.

In order to be considered safe the machine will have to meet all the essential requirements related to the health protection and included in the Disposition. The Disposition repeats the Machinery Directive requirements related to the criteria of conformity assessment. The Polish producers will have the same possibility of making use of the harmonised standards as have at the moment the producers coming from the European Union. The machines will be placed on the market after the producer declares that they meet the requirements described in the Disposition.

According to the Disposition's provisions, starting from January 1, 2003, by the moment of Polish accession to the European Union, only the products meeting the requirements imposed by the Disposition, i.e. the products consistent with the technical requirements imposed by the Machinery Directive, may be placed on the Polish market. This does not comprise the CE mark, which shall not be used by Polish manufacturers. In case the third party participation in the conformity assessment is required, the Polish notification units take part in the process, but their opinions are not valid in the European Union.

The Polish producers exporting to the European Union will be allowed to apply the CE mark, bearing the whole responsibility, on the basis of the law of the country the products are sent to. In case the participation of notified unit is required for a given product the producer is to apply to any unit of the European Union.

Independently of the legal implications resulting from the Act on the Conformity Assessment System, in the pre-accession period Poland is to observe the provisions of the Agreement on the Protocol on European Conformity Assessment (PECAA). It stipulates, among others, to simplify the verification procedures within valid regulations. One of the important provisions of the Agreement is the mutual recognition of conformity assessment units, which would result in free circulation of goods between Poland and the European Union. At the same time it would enable the Member States to acknowledge the test results and certificates issued by Polish notification units, and vice versa. The Agreement is transitory and is to be valid only by the moment of Polish accession to the European Union.

An important element of the European (and soon of the Polish) machine-building industry is the **system of market surveillance**. In case of the European system of ensuring the machine safety the state control is performed on a different stage than in case of the system valid so far in Poland. In order to guarantee free circulation of goods the Member States resigned from checking the products before they are placed on the market (the conformity assessment performed by the notified units is not a state control). The state is however obliged to control the products already placed on the market. Generally, such a control is random and paid by the Budget. As a result different types of sanctions may be imposed on the producers. The market surveillance system is tailored individually by Member States.

The market surveillance is necessary to allow to function the machine safety system based on the New Approach Directives. In Poland the guidelines for the market surveillance system creation were adopted by means of the European Integration Committee Resolution on June 13, 2001.

The main Polish body responsible for the market surveillance is the Office for Competition and Consumer Protection (*UOKIK*). It will be in charge of, among others, co-ordinating the activities of other market surveillance units, ordering controls and pronouncing opinions on their results, making decisions on withdrawing the product, creating database on the hazardous products and disseminating such information through the European channels.

The market is to be controlled making use of already existing, specialised bodies, such as Trade Inspectorate (*Inspekcja Handlowa*), National Labour Inspectorate (*Panstwowa Inspekcja Pracy*), Office of Telecommunications Regulation (*Urząd Regulacji Telekomunikacji*), Mining Inspectorate (*Wyższy Urząd Gorniczy*) and Construction Surveillance Authority (*Urząd Nadzoru Budowlanego*). Their main task is to perform control activities (of the documentation as well as of the goods) and taking decisions, together with UOKIK, on possible sanctions.

Low voltage directive (LVD)

Another Directive important for the machine-building industry is the Directive concerning low voltage. The amendments, which adjusted it to the New Approach requirements, were adopted in 1993 (93/68/EEC). Starting from January 1, 1995 the producers may apply this Directive in order to have their products consistent with the European Union harmonised standards.

The Low Voltage Directive is fully harmonised, i.e. it replaced before-valid European Union regulations concerning electrical equipment. Any electrical equipment to be placed on the market needs to meet the requirements imposed by the Directive. The Member States may not limit free circulation and trade in equipment meeting those requirements.

It relates to all the electrical equipment operating within the range of voltage from 50 to 1000 V of the alternating current and from 75 and 1500 V of the direct current. It comprises then all the consumer goods and means of production designed to operate within the defined range of voltage, such as any kind of electrical equipment and devices, lighting devices, control and distributive systems, electrical installation devices, etc. The Directive comprises also the electrical equipment to be mounted in more complex devices.

While regulating all the aspects related to safety the Directive takes account of all the possible risks resulting from the use of electrical equipment, including not only electrical but also mechanical, chemical and other risks. It comprises also the health problems caused by the noise and vibration.

The Low Voltage Directive imposes to the electrical equipment the same requirements that the Machinery Directive imposes to the machines, i.e.:

- the equipment is to meet the basic requirements related to the health protection and general safety,
- it needs to undergo the proper conformity assessment procedure,
- it needs to be granted the CE declaration of conformity or the manufacturer's declaration,
- it needs to bear the CE mark.

The Low Voltage Directive defines the conditions of conformity with technical standards. They are the same as in case of the machines. The electrical equipment producers are also allowed to make use of above-described harmonised standards. Their conformity procedure is the same as in case of machines. The declaration of conformity is issued by the producer himself, who is obliged to mark the product with the CE mark before placing it on the market. The only difference is that the Low Voltage Directive does not provide the third party's (notified units) participation in the conformity assessment procedure.

Polish legislation

The Low Voltage Directive was implemented in the Polish legal system by means of the Council of Ministers Disposition of July 3, 2001 (Polish Official Journal No 120, item 1726). The Disposition comprises all the requirements of the Low Voltage Directive concerning the risks related to the electrical equipment use. As in the case of the Directive, the Disposition defines the equipment conformity assessment procedure and the conditions to be met by the producer before placing the product on the market.

The Disposition enters into force on January 1, 2003, except for the regulations concerning the CE mark which are to become valid on the day of Polish accession to the European Union.

Another legal document which regulates the issues related to the machine and equipment safety is the Act of March 2, 2000 on Protection of Certain Consumer Rights and on Responsibility for any Damage Caused by Hazardous Product (Polish Official Journal No 22, item 271). Part of the Act, concerning responsibility for the damage, is a vitally important part of the Polish legal system providing for the product safety (including machines and equipment) as required by the European Union.

Moreover, the general issues related to the product safety are subject of the Act of January 22, 2000 on the General Product Safety (Polish Official Journal No 15 of March 7, 2000, item 179). The main objective of the Act is to establish the requirements related to the safety of all the consumer goods and to the method of supervising whether they are met. By the Act adoption Poland implemented the European Union Directive 92/59/ECE on general product safety.

The Act entered into force on September 8, 2000. It does not impede to apply detailed rules, i.e. all the provisions of the Council of Minister Disposition implementing the Machinery Directive shall apply to machines. The machines being consumer goods are also subject to the control imposed by the Act. The Act shall also apply to the consumer machines, excluded from the scope of the Machinery Directive and to the products, which are not machines as per the definition provided in the Directive.

Adapting machinery industry to integrate with the EU

Polish integration with the European Union is not to be very significant for the machinery-building industry. Practically, the Polish enterprises of the sector are not threatened directly by integration. On the contrary, Polish accession to the European Union is to facilitate the operation of Polish exporters.

Transposition of the Community legislation on the machinery-building industry to the Polish legal system goes quite smoothly. The most important Directives of this domain have already been included in the Polish legislation, and the details on creating the conformity assessment system, accreditation and market surveillance are being elaborated and are to be ready by the day of Polish accession to the European Union. There is then no threat that any formal (legal or administrative) obstacles occur for the Polish machinery producers impeding them to compete on the common market after Poland is incorporated in its structure.

The practical aspects of adapting to integrating with the European Union are related to the fact that it will be necessary for Polish producers to compete with the producers of the European Union. Entering Poland to the common market structure, which is to take place on the day of accession, is not to increase significantly the pressure exerted by foreign machinery producers. The machinery and equipment import from the European Union countries is duty-free from the 1999, so the integration does not entail opening the market, as it is already opened.

On the contrary, the integration with the European Union is to facilitate Polish producers' access to the Member States markets. This is due mainly to simplifying the procedures of assessment of conformity with the European standards; it will be possible to perform them in Poland. The Polish producers will also benefit from the fact that they will be allowed to mark their products with the European safety EC mark. The Polish machinery and equipment producers' access to the European market is to be based on the same rules as in case of the other Member States.

The Polish enterprise readiness to meet the European Union technical and safety standards is satisfactory. By now, approximately 50 percent of the European standards have been implemented to the Polish ones (at the same time the standards that were not consistent or were contradictory have been withdrawn). This means that many of Polish enterprises already apply the European standards in their production. From 2003 the Polish Standardisation Committee has transposed to the Polish regulations at least 80 percent of the European standards. All the harmonised standards, being the basis for the rule of presumption of conformity and the system of conformity assessment, are to be transposed as well. This means that from January 1, 2003 Polish machinery producers are to apply the majority of the standards in force in the European Union.

Bearing in mind the structure of the Community conformity assessment system, based on the producer's declaration, and the fact that the conformity assessment with participation of the third party (notified units) concerns only small part of the products, the Polish producers will have better possibilities of making use of the system than they have at the moment, and its costs will be lower. The only problem may be the self-discipline – in case of many products it will be the producer who will guarantee that the product is safe and consistent with the standards, and it will be the producer who will issue the document confirming such conformity.

The fact that there are no serious problems related to integration does not mean that the situation of the Polish machinery industry is very good. There are another problems, which are not directly related to integration, but which have a strong influence on the sector functioning and competitiveness.

The most important factor is the technology gap; many machinery producers in Poland are not as modern as their European competitors. This is less significant in case of enterprises which are partly owned by foreign investors, providing not only capital, but modern technologies, knowledge, experience, and new, efficient management methods. In the case of many Polish machinery enterprises, not fully restructured, the significant problem is the scarceness of modern technologies and obsolete tooling.

The situation is worsened by the fact that the gap in technologies applied by the Polish machinery industry is getting bigger and bigger, as the investments in research and development are not high enough and as the innovative activity is not very big. This is caused by the low accumulation of capital in the sector and by the fact that there is no money for the above mentioned purposes.

One may not consider that the Polish machinery industry advantage are low labour costs, as the sector competitiveness is mainly due nowadays to the work efficiency and not to the labour costs. The work efficiency depends directly on the level of technology development, and this may not be considered satisfactory. The factor, which is most important in case of machinery industry competitiveness, is the volume of means used for the innovative activity – for the research and development. In Poland the R&D potential, due to limited means, is used only in its part.

It is worth to underline the fact that the above-described problems, related to the technology gap, are not directly related to the European integration and are not to impede to enter Polish machinery industry to the common market structures. Moreover, Polish accession to the European Union may help the producers to solve their problems. The integration with the European Union is not to change either the level of

competitiveness of the Polish machinery industry enterprises, which, despite the technology gap, will sell part of their products to the European Union countries. The problems related to the technology gap do not concern all the machinery industry enterprises and are quite common in case of many others sectors of Polish industry.

3.5. SWOT Analysis

Strengths:

- adjustment of Polish law to the EU sector regulations
- creation of conformity assessment system and market surveillance system compatible with the EU solutions
- transformation of majority of the EU norms to the Polish set of norms in the sector
- current cooperation and long term trade contacts with the EU partners
- strong market position and production specialisation in selected activities (machinery for coal mining, machinery for automobile industry), especially in domestic perspective
- highly qualified engineers and technical personnel

Weaknesses:

- technological gap between machinery industry in Poland and the European Union countries
- partly obsolete production equipment and production facilities
- lack of funds for enforcing investment and R&D activities
- low profitability in the sector

Opportunities:

- easier access to the EU markets (possibility of the use of the „CE” mark conformity assessment system by producers)
- acceleration of economic growth in Poland resulting in improvement of economic situation of companies and purchasing power of households
- lower cost of application of the new conformity assessment system

Threats:

- continuation of economic slowdown in Poland and the EU that will constrain investment possibilities of the machinery industry
- increase of technological gap between Polish and the EU machinery industry

4. Summary

Enlargement of the European Union will be an important challenge for the entire Polish society and economy. It will affect each kind of economic activity and every aspect of social and economic life. European integration means huge effort for Polish companies to find their place on the unified single European market. Preparations for the accession have been enforced in various fields, starting from changes in legislation. Legislation in Poland should be unified with EU regulations in order to improve competitiveness and market performance of companies. The goal is not only to survive in a new economic environment, but also to perform well and to create conditions for economic expansion.

The report presents many of above-mentioned issues that manufacturing of machinery and equipment industry in Poland has to face in the light of European integration. In addition to the general presentation of the sector and its development in recent years, the level of sector readiness (preparation) to European integration was assessed. European Union regulations affecting machinery industry is also presented as well as current adjustments of Polish law to new requirements.

Production of machinery and equipment is an activity in which European Union pays much attention to the products safety. The European system of machinery safety is based on quite different rules than those which are used to operate in Poland. In European Union, excluding few exceptions, producer himself is responsible for machinery safety that he produces. It is his responsibility to judge whether the machine is safe and satisfies requested standards or norms and producer presents relevant certificates for his products. In Poland technical organisations and official institutions play such role. They are responsible for issuing safety certificates.

This explains why the most important issue in adjusting Polish machinery industry to European integration is a complete reconstruction of an existing products safety system. Such process is well advanced. Implementation to Polish law of all relevant European legal acts has been implemented. All elements of the system such as, for example, introduction of procedures for norms, or market surveillance are in huge part prepared and will fully operate in the moment when Poland enters European Union. Set of norms operating in Poland at the beginning of 2003 is in 90 percent in agreement with European standards.

From the legal point of view Polish machinery industry should be fully prepared for integration and we do not foresee any formal or legal obstacles for operating on a single European market. Sector's adjustment to integration is not however, limited to harmonisation of legal and systemic measures. It requires companies' preparation for operating in new economic conditions.

Implications of economic integration with European Union on functioning Polish companies operating in machinery industry will not be important. The integration will not significantly affect the way companies are operating currently in Poland, no changes are necessary. Timely implementation of European law affecting machinery industry will result in a smooth entrance to structures of European market. The most visible effect of integration will be new system of machinery safety. A new system will be cheaper and friendlier for Polish producers than a previous one. Under a new system Polish producers will be granted with the same privileges which have producers in the EU member countries. They will be allowed to mark their products with the "CE" mark on their responsibility. Such mark will facilitate access to European Union markets. In short, impact on machinery industry resulting from a "pure" integration effect could be expected as insignificant.

Another effect of the European integration that should be taken into account is how Polish companies will perform in the light of more intensive competition vis a vis foreign companies, both from 15 EU member

states and nine accession countries. New competition situation means competition on Polish market with imported machinery and possible new entrances as well as open competition on the enlarged EU single market. Competition effects in machinery industry will probably be limited. One should expect neither growth nor decline in size of machinery industry due to the EU accession. A number of companies and ownership structure in the sector should remain stable, as well as number of employees. This opinion is supported by the fact, that machinery market in Poland can be described as an open market, which is neither protected by tariffs nor by non-tariff barriers. Poland's accession will not change much in this respect. One can not expect a growing competition pressure by foreign suppliers of machinery to Polish market.

The third aspect of the European integration consequences for Polish sectors is assessment of adjustment ability to the fast changing economic environment. In the case of machinery industry two aspects should be taken into consideration. The first aspect is EU enlargement. In Poland, machinery sector has demonstrated its ability to adjust: efficient implementation of European regulations, introduction of European machinery safety system, implemented openness of internal market, all contribute to the processes of adjustment to new conditions.

The second aspect of adjustment abilities is not directly connected to the accession issues. It has to do with global dimension and processes taking place in the world machinery industry. Technological progress and innovation activities are currently of utmost importance in the machinery industry. These processes and activities are connected with the need of high level expenditures on R&D activities. Machinery industry is not a typical case in Polish manufacturing. Although the majority of Polish companies other than active in machinery industry due to the lack of financial means do not actively participate in R&D activities. This relatively comfortable situation in machinery industry has prevented deepening of a technological gap between Polish machinery and its competitors in the European Union.

A growth effect of the EU accession on the Polish machinery industry is expected in a short run. This will result not only from the strong domestic demand, but also from the access to a larger European market. In a long run one should foresee two scenarios. In the first scenario growth of Polish machinery industry may accelerate due to comparative advantage resulting from low labour cost combined with relatively high technical standards of products. In the case when growth acceleration will contribute in creating high attractiveness of the sector, it will be possible to gain funds for intensive investment process and strengthening R&D activity. In such scenario the sector will expand and enlarge its share in manufacturing. In the second scenario, growth acceleration will not be sufficient for financing intensive investment activities. In such case the sector will restore its share in manufacturing industry.

The effects of accession on foreign trade in machinery and equipment are expected to be positive. In recent years export from this sector has been growing quite fast while import diminishes. Deep restructuring process that has taken place results in growing labour productivity and higher competitiveness. Enough to mention, that in the last 8 years number of employees diminished by one third. Net export of machinery has been always negative in Poland, but its size tends to diminish. Negative net export is a result of high demand on machinery and equipment as investment goods. On the other hand, almost 80 percent of exports has been located on the European Union markets. Prospects for further diminishing of net exports depend on opportunities connected to easier EU market access after the accession.

Foreign investors are in minority in the manufacturing of machinery and equipment industry and their number is not likely to increase in a short term. There are several explanations of such situation: domestic companies experienced successful restructuring process, in this traditional activity Polish companies are more competitive than in other industrial activities, the sector is dispersed between many medium sized companies specialising in manufacturing variety of goods. Inflow of more foreign companies in Poland

could be expected in a long run, partly through purchasing existing domestic companies or forming joint ventures, partly through green field investments.

Like most industrial sectors machinery industry in Poland have been deeply restructured in the mid nineties. Labour force was reduced and labour productivity grew. With expected production growth after the EU accession, one should expect either stabilisation of labour force at the present level in this sector (200 000 employees) or its slight growth.

Market structure in the machinery industry should not be much affected by the accession. One may expect growth of all categories of companies according to their size (measured by number of employees or sales figures). As far as ownership structure is concerned, the remaining state-owned companies will be privatised sooner or later. New entrances from the side of foreign companies is highly probable, however, a dominance of a domestic private capital should be maintained in the perspective of at least 3-5 years after the EU accession.

Polish machinery industry is relatively well prepared for integration with the single European Union market. There is no direct menace leading to deterioration of companies' economic situation in machinery industry in relation to the pre-accession period. Quite opposite, certain European institutional solutions are more beneficial than present Polish solutions. Producers will be better off under new solutions. The most urgent issue for Polish machinery industry is capital needs for new investments.

5. Appendix

Manufacturing industry in broad definition

Table.A1 Revenue from sales of machinery industries by (according to NACE classification), current prices

Divisions	1995	1999	2000	2001	2002*
	in million zlotys				
Manufacture of machinery and equipment	13689,3	20698,2	22249,1	23044,4	20252,7
Manufacture of office machinery and computers	478,6	**	**	**	**
Manufacture of electrical machinery and apparatus	6179,4	12327,6	14082,6	14719,8	14113,0
Manufacture of radio, television and communication equipment and apparatus	3346,8	8123,1	9316,0	9793,8	10509,3
Manufacture of medical, precision and optical instruments, watches and clocks	2197,2	4648,7	4731,4	5252,3	3624,0
Manufacture of motor vehicles, trailers and semi-trailers	8704,3	27460,5	30944,3	26404,3	27518,8
Manufacture of other transport equipment	5678,8	9561,2	10948,8	10821,1	8736,9

Source: Statistical Yearbook of Industry 2002, Statistical Bulletin March 2003

* - Data cover those units, in which the number of employees exceeds 9 persons

** - Data may not be published due to the necessity of maintaining statistical confidentiality in accordance with the Law on Public Statistics

Except of transport equipment in 2001, all machinery industries experience growth of revenue from sales. Problems in transport equipment industry are connected to the slowdown in Polish economy since 2000 and decline in investment outlays. Manufacture of motor vehicle is the largest industry in Polish broad machinery sector.

Table A2. Exports by CN sections (in thous. USD)

Divisions	2000	2001	2002
Machinery and mechanical appliances, electrical and electro-technical equipment	6 406 022	7 567 172	9 035 239
Transport equipment	4 514 754	5 586 303	6 518 086
Optical, photographic, measuring, checking instruments and apparatus thereof	191 616	216 290	285 123

Table A3. Imports by PCN sections (in thous. USD)

Divisions	2000	2001	2002
Machinery and mechanical appliances, electrical and electro-technical equipment	13 088 594	13 349 928	13 976 307
Transport equipment	5 092 637	5 060 615	6 838 017
Optical, photographic, measuring, checking instruments and apparatus thereof	1 056 586	1 065 910	1 054 433

Source: Yearbook of Foreign Trade Statistics 2001, 2002

Foreign Trade January-December 2002

Statistical classifications do not allow for presentation of foreign trade data in the same breakdown as production figures. There is quite clear tendency in foreign trade in manufacturing of machinery: net export is diminishing due to growth in export of all machinery industries and stabilisation import of all machinery industries.

Table A4. Average paid employment in machinery industries by divisions (according to NACE classification)

Divisions	1995	1999	2000	2001	2002*
	In thous.				
Manufacture of machinery and equipment	299,5	240,9	218,0	202,5	177,0
Manufacture of office machinery and computers	4,2	5,0	5,0	5,7	#
Manufacture of electrical machinery and apparatus	90,3	94,0	89,3	88,8	80,0
Manufacture of radio, television and communication equipment and apparatus	45,2	34,7	32,8	31,5	26,0
Manufacture of medical, precision and optical instruments, watches and clocks	42,4	39,5	37,4	37,7	35,0
Manufacture of motor vehicles, trailers and semi-trailers	99,1	100,1	96,5	86,1	77,0
Manufacture of other transport equipment	113,5	85,2	79,3	79,5	71,0

Source: Statistical Yearbook of Industry 2002, Statistical Bulletin, March 2003

* - Average paid employment in enterprise sector

- Data not available

All industries in machinery sector (except of manufacture of office machinery and computers – high technology activity, according to the OECD approach) have experienced reduction of employment, which probably is not completed yet. This tendency can be changed if production grow after accession to the EU.