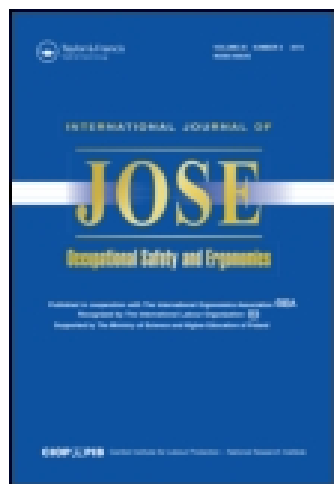


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Poland in Transition to the European Union (in the Context of Meeting Standards in Occupational Safety and Health)

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Economic transformation has had a positive influence in Poland on statistical indices that characterize occupational safety and health (OSH). Surprisingly, working conditions have not deteriorated. Methodological differences make comparing statistical data in various countries difficult. OHS standards in Poland are harmonized with European and international ones. Testing and certification, quality and OSH management systems are very important, as are education and training in OSH and international cooperation. Increasing unemployment is a significant threat to the development of OSH or even maintenance of its current state.

European Union occupational safety and health standards
Central and Eastern Europe

1. BACKGROUND

Transformation in Central and Eastern European countries has mainly meant changes of economy. Indirectly, though, those changes have influenced the social system, too. In general, working conditions (including occupational safety) are related to that system. It should be stressed that despite earlier misgivings the economic transformation in Poland has not brought deteriorated working conditions. Data from the Central Statistical Office (2000a) attest to that. They are gathered in Poland for the population of 5.25 m employees. Out of that number, 140 per 1,000 employees were employed in harmful conditions in 2000, compared to 163 in 1990.

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The index of persons injured as a result of occupational accidents, which was 8 per 1,000 employees in 1990, increased to over 10 in 1996–1997, to return to 8 in 2000 (Table 1). The index of persons killed in fatal accidents decreased during that period from 0.07 to 0.05 per 1,000 employees.

TABLE 1. Persons Injured and Killed in Accidents at Work in Poland in 1987–2000

Year	Persons Injured		Persons Killed*	
	Total	Per 1,000 Employees	Total	Per 1,000 Employees
1987	183,031	19.91	987	0.110
1988	166,608	18.74	972	0.110
1989**	143,482	17.19	913	0.110
1990***	108,274	8.36	850	0.066
1991	115,972	9.63	786	0.065
1992	102,941	9.02	647	0.057
1993	103,072	9.33	659	0.060
1994	102,441	9.07	645	0.057
1995	112,205	9.92	624	0.055
1996	117,119	10.28	647	0.057
1997	120,897	10.50	702	0.060
1998	117,503	9.93	651	0.055
1999	98,774	8.42	523	0.045
2000	94,881	8.37	604	0.053

Notes. *—the number of killed persons is included in the number of injured persons; **—excluding small enterprises (2–3% of employees in the manufacturing sector); ***—data after 1990 may be underreported as there are no summary reports in the new system of gathering information.

The number of recognized cases of occupational diseases increased considerably in the 1990s: from 80 per 100,000 employees in 1990 to 130 per 100,000 employees in 1994 to return in 2000 to a level close to that in the 1980s (Figure 1). That temporary increase in occupational diseases was primarily related to the restructuring of many branches of the heavy industry, which “generates” occupational diseases. Employees, whose health was generally bad and who were being laid off, often received—for social reasons—documents confirming they suffered from occupational diseases.

The aforementioned basic indices of occupational safety and health (OSH) in Poland during transformation could testify to the fact that transformation has not had a negative effect on OSH. However, to obtain a proper reference point for Poland aspiring to membership in the European Union (EU), we need to compare the aforementioned data with OSH indices in developed countries, including, most importantly, the EU. Of course,

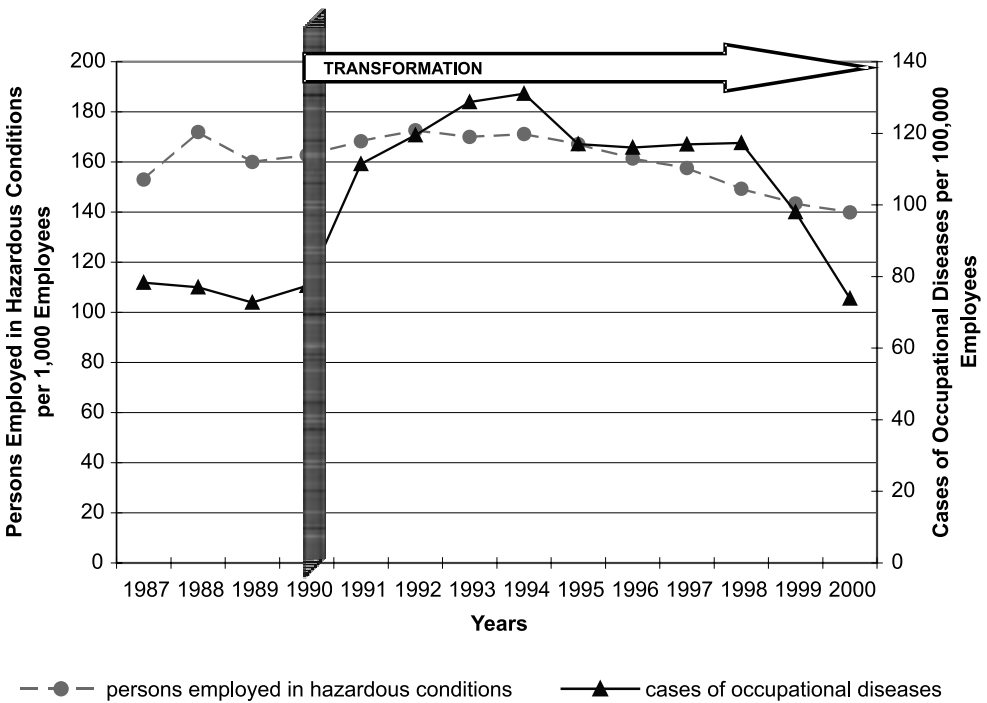


Figure 1. Hazardous conditions and occupational diseases in Poland in 1987–2000.

because of methodological differences these data are not fully comparable. For example, in the case of the EU information is available on persons exposed to occupational hazards, which has been gathered on the basis of questionnaires of the European Foundation for the Improvement of Living and Working Conditions (1996) filled in by employees. In Poland employers' reports are sent to the Central Statistical Office. Table 2 compares the number of employees exposed to selected hazardous factors of the working environment according to reports of the European Foundation for the Improvement of Living and Working Conditions (1996) and of the Central Statistical Office (2000b).

A comparison of data in Table 2 shows that in Polish statistics they are considerably underreported. Even bigger differences can be found in statistics related to accidents at work. Those differences apply to comparisons with Poland, but they also appear when practically all EU countries are compared with one another. Those differences result from the various definitions of accidents at work and various ways of registering them (from 1 to 3 days of

TABLE 2. Percentage of Employees Exposed to Selected Hazardous Factors in European Union (EU) Countries and in Poland

Hazardous Factors	EU															PL	
	A	B	DK	FIN	F	D	GR	NL	IRL	I	L	P	E	S	UK		(Total)
Noise	9	7	8	11	12	9	18	9	10	9	12	15	16	10	10	10	4.6
Vibration	14	6	5	8	12	17	18	7	8	8	13	18	19	5	8	11	0.38
Hot microclimate	6	3	2	2	6	4	10	6	5	4	9	5	10	2	5	5	0.46
Cold microclimate	6	3	3	2	8	3	10	5	4	6	5	4	11	2	4	5	0.43

Notes. A—Austria, B—Belgium, DK—Denmark, FIN—Finland, F—France, D—Germany, GR—Greece, NL—The Netherlands, I—Italy, IRL—Ireland, L—Luxembourg, P—Portugal, E—Spain, S—Sweden, UK—United Kingdom, PL—Poland (Central Statistical Office, 2000b). Data for the EU countries come from a questionnaire survey of employees carried out by the European Foundation for the Improvement of Living and Working Conditions (1996).

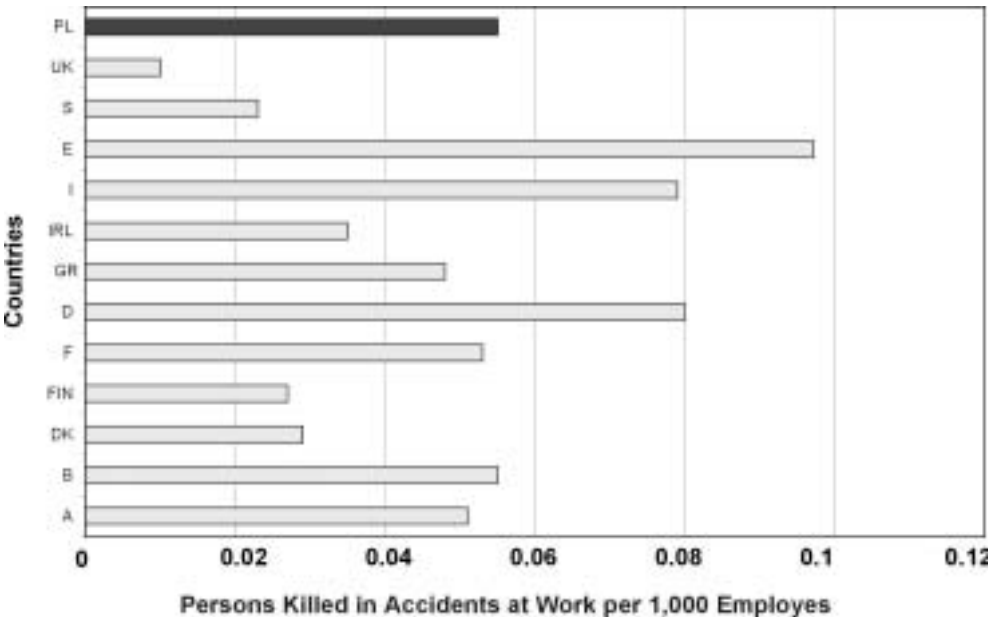


Figure 2. Persons killed in accidents at work per 1,000 employees in selected European Union countries and in Poland (Central Statistical Office, 2000a).

Notes. PL—Poland (data from 1998), UK—United Kingdom (data from 1997), S—Sweden (data from 1997), E—Spain (data from 1998), I—Italy (data from 1997), IRL—Ireland (data from 1997), GR—Greece (data from 1995), D—Germany (data from 1993), F—France (data from 1996), FIN—Finland (data from 1996), DK—Denmark (data from 1996), B—Belgium (data from 1997), A—Austria (data from 1997).

absence). At present the EU and Eurostat—its agency—as well as the International Labour Organization are working intensively on standardizing definitions and ways of registering occupational accidents and diseases. Thus, in the near future, it will be possible to compare relevant indices in different countries. For the moment, the index of fatal accidents at work per 1,000 employees can be compared (Figure 2).

2. STANDARDS IN OSH IN POLAND AND IN EU COUNTRIES

The basic standards that should be complied with in the working environment are Maximum Admissible Concentrations (Maximum Admissible Concentration, Maximum Admissible Short-Term Concentration, Maximum Admissible Ceiling Concentration), and Maximum Admissible Intensities of harmful agents.

There are 63 items on the list of substances and values of their concentrations in the working environment that has been established in the EU (Council Directive 89/655/EEC amended by Directive 2001/45/EC). Thanks to the work of a Polish government commission, which used the results of a research programme¹, the Polish list of harmful substances now covers all substances on the EU list and the Maximum Admissible Concentration values established for them are identical with those on the EU list. At the same time it should be stressed that in addition to the obligatory list for the EU, there are another 359 substances on the Polish one (Koradecka, 1999). Thus the Polish list has been considerably extended and updated (Figure 3). Table 3 compares Polish Maximum Admissible Concentration values with those in the USA and in the EU.

The principle of preparing full documentation on the mechanisms of absorption by and effect on the body of individual chemical substances (in force in Poland since 1983) and the principles of medical and technical prevention of the substances' negative consequences are equally important for preventing adverse health consequences of harmful agents in the working environment.

¹ National Strategic Programme "Occupational safety and health protection in the working environment" supported in 1998–2001 by the State Committee for Scientific Research of Poland. The Central Institute for Labour Protection is the Programme's main co-ordinator.

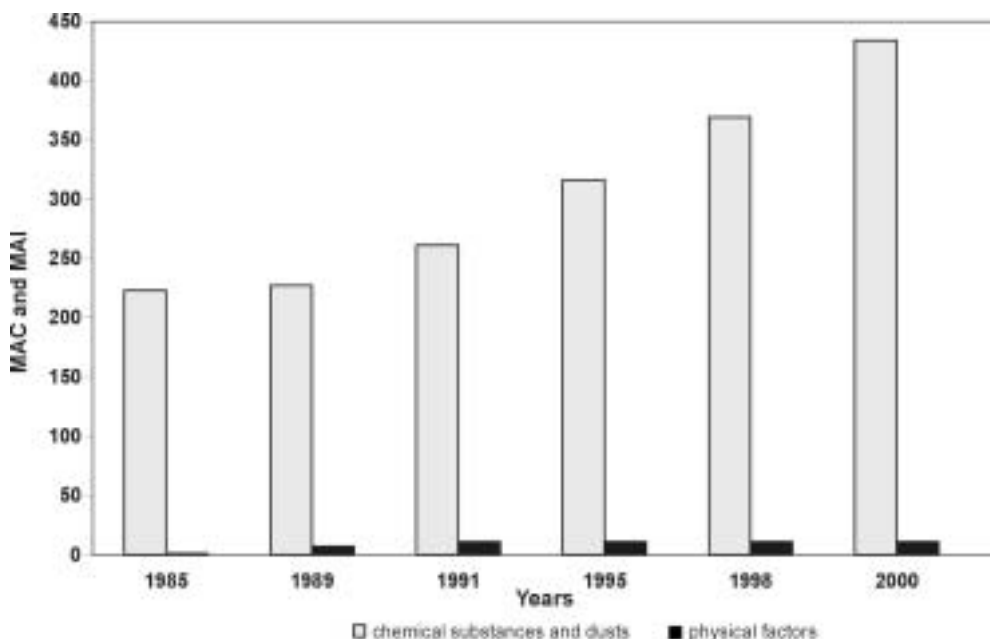


Figure 3. Maximum Admissible Concentrations (MAC) and Maximum Admissible Intensities (MAI) in Poland in 1985–2000.

TABLE 3. A Comparison of Maximum Admissible Concentrations (MAC) of Chemical Substances in Selected European Union Countries and in the USA With Those in Poland

Country	MAC Values			Substances on Polish List Only*
	Identical	Higher	Lower	
USA (ACGIH) (741)	137	155	74	68
Germany (700)	77	135	114	108
Sweden (450)	56	82	45	251
France (529)	109	177	26	122
Belgium (543)	112	190	20	112

Notes. Poland = 100% (434). *—Substances on the Polish list that are not included in the lists of respective countries. Numbers in parentheses illustrate numbers of substances on lists in respective countries. ACGIH—American Conference of Governmental Industrial Hygienists.

An analytical sampling method in workplace air is established—as a Polish standard—for each chemical agent and physical factor.

The physical factors section of the list is noteworthy. It includes, among others, noise; infra- and ultrasound; hand-arm and whole-body vibration; hot and cold microclimate; infrared, ultraviolet, and visible radiation; laser radiation, electromagnetic fields and radiation in the 0 Hz–300 GHz range. The values of Maximum Admissible Intensities in force in Poland comply with the values in EU directives as well as in international and European standards.

Thus, the first module of health prevention is carried out in Poland in accordance with international standards with considerable progress taking place during transformation.

3. STANDARDIZING THE REQUIREMENTS IN OCCUPATIONAL SAFETY AND ERGONOMICS

Research results bring the establishment of unambiguous and objective occupational safety and ergonomics requirements. In Poland research in the field of OSH was carried out under the aforementioned government programme (National Strategic Programme, 1998–2001). Its results were implemented as Polish standards, which between 1990 and 2000 became equivalent to European and international ones.

The basic occupational safety and ergonomics requirements that were developed were subjected to standardization procedures in five Technical Commissions based by the Chair of the Polish Committee for Standardization at the Central Institute of Labour Protection (CIOP). Table 4 illustrates the work of those five commissions.

TABLE 4. The Number of Standards in the Field of Occupational Safety and Health Developed by Technical Commissions of the Polish Committee for Standardization at the Central Institute for Labour Protection

Field	Standards in Force in 2000
Chemical agents	521
Physical factors	51
Safety engineering and ergonomics	64
Personal protective equipment	78
Management of occupational safety and ergonomics	2

The following factors had a significant impact on progress in standardization of occupational safety and ergonomics requirements:

- the results of the National Strategic Programme “Occupational safety and health protection in the working environment” (1998–2001);
- participation of 29 experts from CIOP in international and European standardization carried out in 13 technical committees and 23 working groups;
- interlaboratory comparative testing carried out in many areas of measurement, assessment, and prevention of occupational hazards. For example, the Institute participated in
 - comparative tests of personal protective equipment (e.g., clothing materials, face and eye protective equipment, antivibration gloves, hearing protectors), organized by vertical groups of notified bodies in the scope of the directive on personal protective equipment (PPE; Council Directive 89/686/EEC);
 - comparative tests of respiratory protective equipment as well as clothing and filtration materials—organized by the Institute in cooperation with EU research institutes;
 - comparative tests related to determining chemical substances and dusts in workplace air samples (testing for presence of cadmium, lead, chromium, benzene, toluene, and *m*-xylene), within the Workplace Analysis Scheme for Proficiency (WASP) system—organized and coordinated by the Health and Safety Laboratory (UK).

4. TESTING AND CERTIFICATION OF DANGEROUS MACHINERY AND PPE ACCORDING TO THE REQUIREMENTS OF EN 45000 AND ISO 9000 STANDARDS

The next significant task of labour protection in the transformation process has been the creation of content-related and technical bases for a state system of testing and certification of products that significantly influence occupational safety and health. Work towards that goal was taken up by CIOP in close cooperation with EU countries, especially with centres for testing and certification in Germany, France, and the UK.

As a result, all 17 laboratories of the Institute obtained appropriate competence confirmed by audits (including those conducted by EU experts). Those laboratories can test products to certify them (PPE, collective protective equipment, machinery, ladders) and measure parameters of the

working environment (vibroacoustic parameters, microclimatic parameters, electromagnetic fields, lighting, infrared and ultraviolet radiation, concentration of harmful chemical substances in workplace air, physiological parameters of human in the working environment). The Institute is also accredited as

- a certification body for PPE, machinery and equipment, collective protective equipment, high-voltage insulating and protective equipment, and ladders (1994);
- a certification body for quality and OSH management systems (2000).

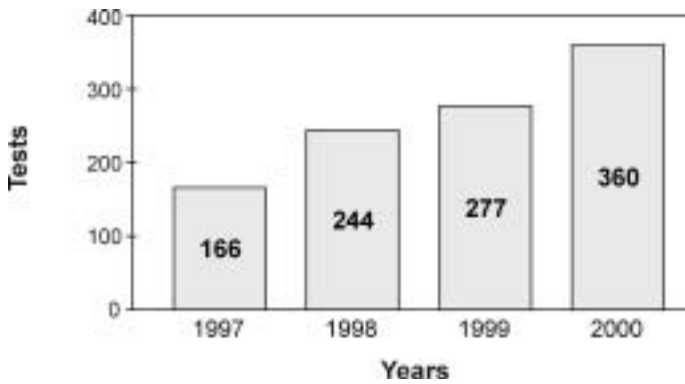


Figure 4. The number of tests performed in the accredited laboratories of the Central Institute for Labour Protection.

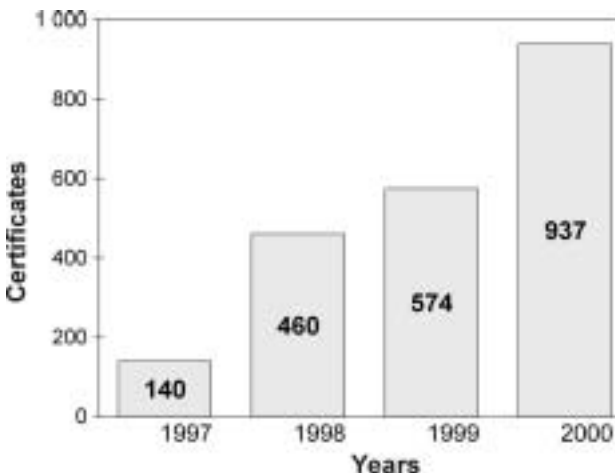


Figure 5. The number of certificates for the safety mark issued by the Central Institute for Labour Protection for machinery, personal and collective protective equipment.

Figure 4 illustrates an increase in the number of tests carried out in the process of accreditation in 1997–2000, whereas Figure 5 illustrates the number of certificates issued in the same period.

CIOP maintains constant surveillance over the standard of certified products. The level and the dynamics of the development and the constant improvement of this system have undergone a special audit by an EU expert. As a result, CIOP is one of three Polish research institutes recommended for notification in EU countries. In 2001, a Phare-supported programme was launched to prepare and notify the Institute in these fields.

5. A SYSTEM OF EDUCATION AND TRAINING IN OSH

Activity in this area has been carried out for years by many training centres in Poland. However, the necessity to make OSH specialists and social partners (i.e., employers and employees) aware of OSH requirements resulting from EU directives as well as from international and European standards poses a new challenge for the Polish system of education.

This challenge is related to three basic areas, that is, content, form, and scope of modern education and training in the field of occupational safety and ergonomics. In this field, too, the results of the National Strategic Programme (1998–2001) are significant. The development of state-of-the-art multimedia teaching aids made launching CIOP's Centre for Education possible. This Centre operates under the auspices of the Minister of Labour and Social Policy, the Minister of Health, and the Chief Labour Inspector. It runs post-graduate courses, basic and periodical courses, and highly specialized ones. Every year, about 1,500 people are educated in the Institute. Moreover, a system of Internet distance education has also been developed (graduate studies in cooperation with the Technical University of Warsaw, post-graduate studies and training courses independently by the Institute).

It has been possible to reach the necessary level of teaching thanks to cooperation and support primarily from the United Nations Development Programme (UNDP) and the International Labour Organization (ILO), and Sweden (the National Institute for Working Life within a Swedish International Development Cooperation Agency [SIDA] programme).

The first Polish Centre for Certification of Personnel's Competence was accredited at the Institute in 2000. It checks and confirms the qualifications of lecturers, industrial hygienists, OSH services, and auditors of management systems.

6. OSH MANAGEMENT SYSTEM

The aforementioned elements of the system of labour protection were the basis of their consolidation in the form of OSH management systems at the level of enterprises. Relevant standards in the PN 18000 series were prepared and established. In 2000 the Institute's Centre for Certification of Products and Management Systems was accredited for OSH management systems.

Implementation and promotion of those systems is carried out with the National Labour Inspectorate. Their implementation in Polish enterprises is most important as they are logically integrated with quality management (ISO 9000) and environmental protection (ISO 14000).

These problems are built into the strategies of leading foreign manufacturers in Poland. A similar approach has now become obvious for leading Polish manufacturers. Interest will still grow once experience rating is introduced in Poland.

7. ECONOMIC ASPECTS OF TRANSFORMATION IN POLAND IN OSH

Costs resulting from bad working conditions are still considerable. They are best seen through the benefits paid by the Social Insurance Institution (ZUS). According to ZUS data, in 2000 2,797 new pensions were awarded for inability to work resulting from accidents at work (a decrease of 19.4% from 1999); 4,142 new pensions were awarded for inability to work resulting from occupational diseases. Altogether, in 2000 ZUS benefits (pensions and one-off compensations) totalled about 4 bn 814 m zlotys² (Figure 6), that is, 0.8% of the Gross Domestic Product (GDP).

ZUS statistics report only some of the costs related to occupational accidents and diseases. It is necessary to add the cost of treatment and rehabilitation, which is not calculated for the country as a whole. The cost of sick absenteeism, borne by both ZUS and enterprises, should also be added.

Additional benefits related to occupational accidents and diseases are paid by enterprises. According to data from the Central Statistical Office, which in 2000 covered enterprises employing 5.25 m people, in 2000 occupational accidents and diseases resulted in compensations of 112.62 m zlotys

² In 2000, US \$1 = 4.5 zlotys.

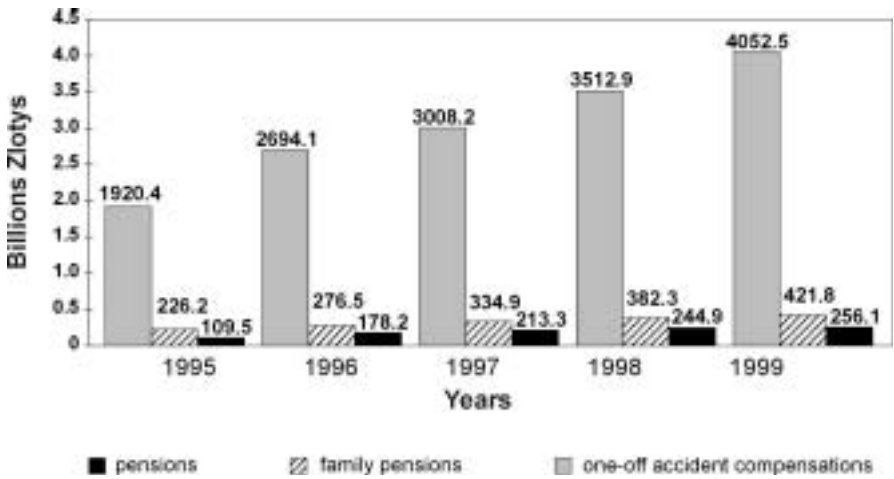


Figure 6. Pensions and compensations for occupational accidents and diseases paid by the Social Insurance Institution in 1995–1999.

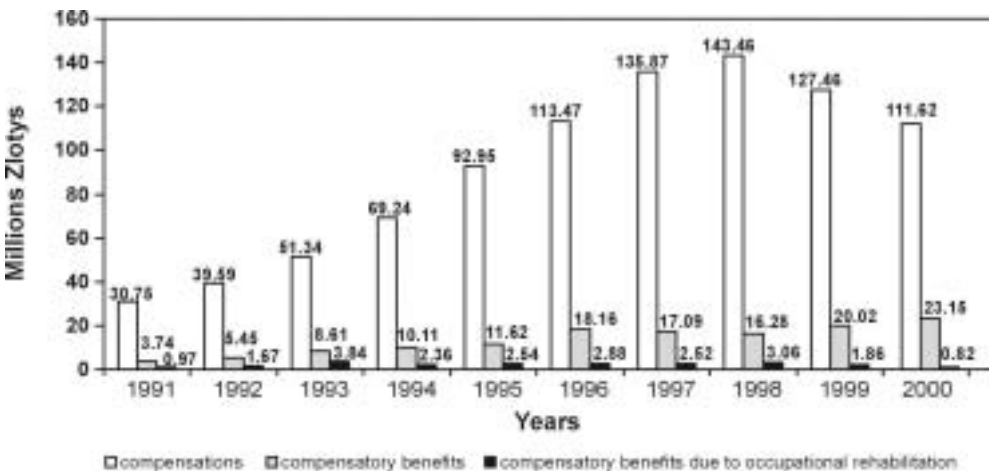


Figure 7. Benefits for occupational accidents and diseases paid by enterprises in 1991–2000.

(total amount), benefits and additional compensations of 23.14 m zlotys, and compensatory benefits for rehabilitation of 0.82 m zlotys. Figure 7 presents a comparison of those benefits over several years.

Thus in 2000 the total cost of benefits resulting from occupational accidents and diseases was 135.58 m zlotys. This cost was borne by enterprises covered by the Central Statistical Office’s statistics on working conditions. Enterprises’ losses caused by damage to machinery and decreased quality and efficiency of work also come from occupational accidents. Moreover, enterprises bear the cost of benefits due to employ-

ment in harmful and strenuous working conditions. Figure 8 presents data for 2000. These are enterprises' costs of shorter work time, additional paid leave, free meals, and money supplements for work in hazardous conditions.

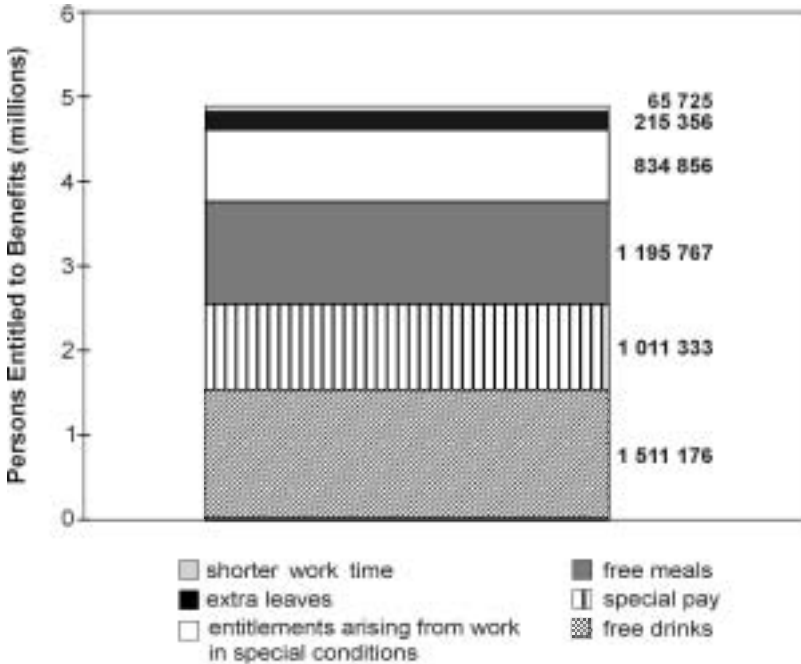


Figure 8. Benefits for harmful and strenuous working conditions paid by enterprises in 2000.

According to data provided by, among others, the International Labour Organization, indirect costs of occupational accidents and diseases (not registered by insurance institutions) are about four times higher than direct costs. Bearing that in mind and taking into account the aforementioned benefits paid by ZUS, the total cost of occupational accidents and diseases can be estimated in Poland to be about 4% of GDP. According to the latest data from the European Agency for Safety and Health at Work (2000), in EU countries the average total cost of occupational accidents and diseases is about 3% of GDP.

Changing Polish law in accordance with the rulings of the EU directives and applying those rulings in practice should help reduce socioeconomic losses related to bad working conditions.

Implementation of new requirements, however, implies costs borne by enterprises. In the context of Poland's membership in the EU, the question of costs that Poland will have to bear for OSH requirements—already implemented into Polish law—to be implemented into the practice of Polish enterprises has also become significant. CIOP studies the cost of the introduction into Polish law of changes, which result from the rulings of European Communities OSH directives. Those Polish enterprises that do not have a problem with meeting the requirements of current law will not pay much to implement the rulings of the directives. Thus, for example, costs borne by enterprises to adapt machinery (excluding self-propelled machinery) to the requirements of Council Directive 89/655/EEC have been estimated at about 312 m zlotys, with only 44 m zlotys being the cost resulting from the need to comply with new requirements not yet implemented into Polish law. In the case of other OSH directives, the cost of adaptation is much lower.

To recapitulate, there are considerable costs caused by bad working conditions both at the level of the state and that of individual enterprises. The improvement of OSH in the workplace can thus—on top of obvious social advantages—also reduce losses in the state's and enterprises' budgets. This will bring increased competitiveness of Polish enterprises, which will be particularly important when Poland becomes a full member of the EU.

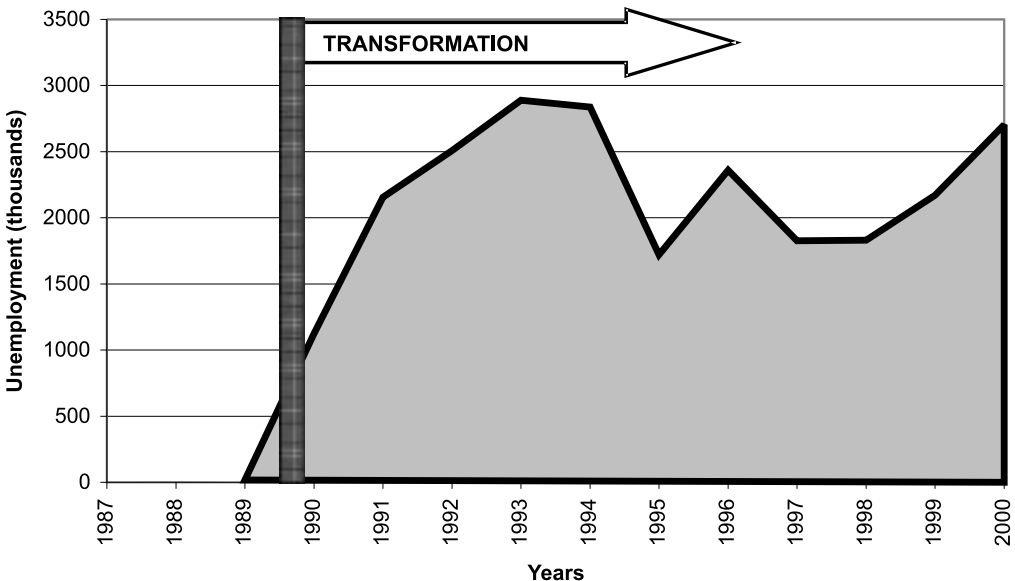


Figure 9. Unemployment in Poland in 1987–2000.

That is why consistent execution of state policy is necessary, as is taking up systemic actions aimed at improving OSH.

The aforementioned positive tendencies in shaping OSH in Poland can deteriorate in view of increased unemployment in Poland. Statistics first recorded unemployment at the beginning of transformation in 1989. In recent years it has again significantly increased (Figure 9).

During transformation, unemployment has become a basic social problem. It can be expected that in the nearest future it can have a negative influence on the level of OSH. Faced with a surplus of workforce, employers can pay less attention to maintaining safety standards and employees will agree to work in strenuous, harmful, or dangerous conditions. This problem will now be of paramount importance. It will have to be analysed and its negative consequences—reduced.

8. CONCLUSIONS

1. In principle, in Poland economic transformation in the last 10 years has had a positive influence on statistical indices that characterize OSH (fewer persons injured as a result of accidents at work per 1,000 employees—including fatal accidents—and, since 1999, also fewer occupational diseases).
2. The Polish Government's decision to launch in 1995 the National Strategic Programme "Occupational safety and health protection in the working environment" made it possible to create scientific and practical bases for a modern system of labour protection by
 - a. developing documentation for determining admissible values for 359 harmful substances and several scores of harmful physical factors (including all substances and factors on the EU list);
 - b. developing 350 chemical safety data sheets (available on CD-ROM), which comply with the EU directive;
 - c. developing standardized methods of measuring and assessing harmful factors in the working environment (716 Polish standards, including those harmonized with EN standards);
 - d. launching a national quality system of
 - testing and certification of products related to technical factors that are crucial for OSH (personal and collective protective equipment, dangerous machinery);

- testing and certification of quality related to organizational factors (personnel's competence, OSH management);
 - e. taking up methodology work on the economic aspects and stimuli of improving working conditions.
3. Cooperation with international bodies (ILO, UNDP, World Safety Organization, National Safety Council) and with EU countries (the UK, Germany, France, Sweden) has significantly influenced progress in OSH in Poland.
 4. Rising unemployment, which can adversely influence the perception and realization of the requirements of OSH standards, can in the nearest future become a serious threat to OSH.

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