

The Polish iron and steel industry in the post-socialist era: the case of the UPPER SILESIA INDUSTRIAL DISTRICT – spatial and structural changes

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Abstract

The economic transformations taking place in Poland after 1989 created a necessity for the restructuring of the Polish economy. The introduction of the latest state-of-the-art production and management methods enabled both a technological improvement of products and an increase in the efficiency of work.

The afore-mentioned innovations resulted in an increase of the economic efficiency throughout steel and iron metallurgy enterprises. Due to the lack of proper funding the level of the advancement of the restructuring processes in the ironworks across the GOP district has been considerably diversified and it has not been finished yet.

Key words: iron metallurgy, GOP district (the Upper Silesia Industrial District), restructuring, modernisation, economic efficiency

Introduction

The economic transformations connected with the transition from a centrally planned economy to a free market economy resulted in numerous changes in the way the enterprises are run.

An increase of the production rate that used to be the main goal of steel and iron enterprises was replaced with the aim of maximising profits. In the context of the Polish metallurgy it was necessary to increase the efficiency of work, to reduce the amount of energy and materials used in the production technologies. At the same time, it was necessary to improve the quality of the products. A decrease in demand among the current recipients, especially in the mining, war and engineering industries as well as the lack of modernisation investments in the railway infrastructure necessitated some alterations in the product line. The changes coincided with the restrictions regarding the environment protection which necessitated financial layouts on the reduction of dust and gases emission, the release of sewage and waste storage.

Various aspects concerning the subject matter of the following paper have been discussed at length on frequent occasions, especially in economic newspapers. Nevertheless, the issue of restructuring the metallurgy in the GOP district (the Upper Silesia Industrial District) has not received a holistic scientific description yet.

The subject matter and research methods

The main aim of the following paper is to present the regularities of the restructuring and modernisation processes of the iron industry in the GOP district as well as to define the possibilities of its further functioning. In order to accomplish the above mentioned purposes, an attempt will be made at discussing the following aspects:

- the differences within the iron metallurgy sector between socialist and capitalist countries,
- the changes in terms of the supply and demand for steel products after the introduction of the mechanisms characteristic for a free market economy,
- the starting date and the financing of the transformations taking place in the branch of metallurgy,
- the alterations made in the production structure and the modernisation processes of the technological lines,
- changes in terms of the burdensome nature metallurgy presents for the natural environment,
- the stage of the adjustment to the market's requirements as well as the prospects for further development of steelworks.

In the light of the above-mentioned points, it is necessary to present the development of metallurgy in the GOP district prior to 1989. It is equally important to compare the efficiency of the Polish metallurgy with the world metallurgy. An attempt will also be made to analyse the transformations introduced so far and to assess the degree of their advancement. According to the afore-mentioned aspects, steelworks have been classified in terms of the level of their adjustment to the needs of the market. A number of conclusions have been put forward regarding the necessity for further transformations in the metallurgy branch throughout the GOP district. For the purposes of the following paper, the term GOP district encompasses the communes within the Katowice agglomeration, i.e. the area where the ores of stone coal are found.

For the last two hundred years, metallurgical industry in the GOP district has been developing on a large industrial scale. In the year 1989 there were sixteen ironworks in this area. For the purposes of this paper, the following ironworks have been considered: Baildon, Bankowa, Batory, Bobrek, Buczek, Cedler, Ferrum, Gliwice, Jedność, Katowice, Kościuszko, Łabędy, Łaziska, and Pokój. The choice of the enterprises was based on the classification of their production profiles according to NACE where the following sort of activities were included: manufacture of pig iron, crude steel, hot and cold rolled products, seamless and seamed tubes.

For the purposes of this analysis, the following materials have been used: scientific articles on the development of metallurgy in the GOP district, GUS Statistical Database concerning the domestic production as well as the UNIDO Industrial Statistics Database for international companies – thanks to the courtesy of M. Paszkowski, Ph.D. from the Institute of Geography, the Jagiellonian University, Kraków. Moreover, materials and scientific analyses of the IMŻ (the Institute of Ferrous Metallurgy), the programmes of the Trade and Industry Ministries as well as various articles published in economic magazines. In order to obtain first-hand knowledge regarding the functioning of particular enterprises, a number of interviews with the managing directors have also been carried out.

Factors conditioning changes in metallurgy subsequent to the economic transformations

In the economy of socialist countries with state-owned and fully state-controlled industrial enterprises, the government decided about the structure of the industry branch. The so-called heavy industry, with metallurgy being one of them, was given priority. It was directly related to a large investment funding enabling a steady development. Considerable expenditures of money brought about the effect of a positive reinforcement between the mining, iron and steel as well as power engineering industries. In order to ensure a sufficient increase of the production rate (the so-called heavy industry syndrome) the above-mentioned industries used to circulate a considerable amount of products between one another. Apart from those branches of industry, a large number of metallurgic products were manufactured on the demand of the defence industry and the development of the railway infrastructure. Among other major recipients one may enumerate the enterprises producing machines, equipment as well as various means of transport. From the analysis of the types of recipients, it may be concluded that the majority of goods was allocated to the needs of the developing enterprises while the smaller part was meant for individual consumption. A comparison between the number of people employed in the iron metallurgy and the total number of the employees in the manufacturing industry confirms the significance of this sector. It should also be mentioned here that a similar comparison of metallurgy with the overall economy would reveal even greater discrepancies due to the low level of the development of the service sector in socialist countries. Putting emphasis on the size of the production as the most decisive economic ratio for a socialist country enterprise resulted in a high usage of labour, materials and energy in the industry. As a result of that, the employment rate was high in comparison with the value added, i.e. low work efficiency (Fig. 1).

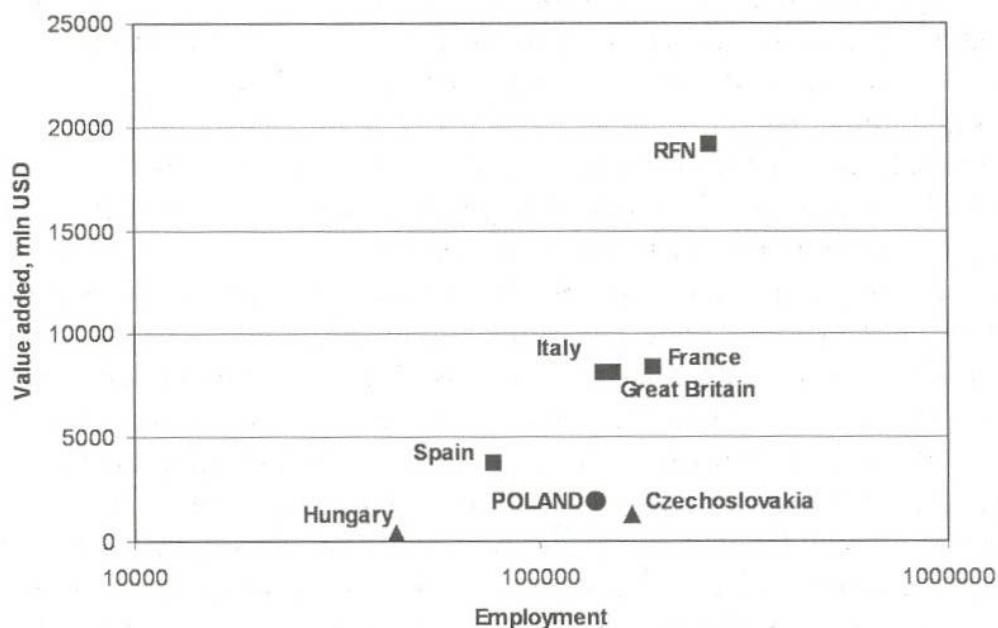


Fig. 1 Work efficiency in the iron metallurgy on the basis of the selected countries in 1990
Source: Own compilation on the basis of UNIDO Industrial Statistics Database

Employment reductions were due to rapid technological developments related to the introduction of labour saving technologies. The computerisation of various production processes has been of great significance for the redundancies. During the major restructuring transformations (between 1975 and 1990) there was a decrease in the employment rate across highly developed countries (Paduch i in. 1997) e.g.:

- United States from 500,000 to 180,000 employees,
- Japan from 259,000 to 162,000 employees,
- Great Britain from 200,000 to 80,000 employees,
- France from 160,000 to 50,000 employees.

There was a considerable discrepancy in terms of work efficiency in the metallurgical sectors of socialist and capitalist countries. The maximisation of profits being the basis of economic activities in a capitalist economy has resulted in a steady reduction of the employment rate throughout metallurgic enterprises. The redundancies were caused by rapid developments of the technology used in metallurgy.

After the collapse of the socialist economy, the discrepancies within metallurgy between the former Eastern and the Western blocks created a necessity for replacing the old economic mechanisms with the new ones characteristic for a capitalist economy. After the opening of the Polish borders, technologically out-dated and less efficient enterprises lost a number of markets to the benefit of importers. The appearance of foreign products on the Polish market brought about changes in the demand of the domestic manufacturers. The situation, in turn, resulted in many changes in terms of the supply of metallurgic goods on the Polish market.

Transformations of the organisational and ownership structures across ironworks

The economic transformations in Poland after 1989 created a necessity for the reorganisation of the enterprises. The reorganisation processes took place both within the companies themselves and in terms of their relations with external enterprises.

Such auxiliary and service departments as: internal and external transport, repairs units, cleaning squads and social services departments have been excluded from steelworks and ironworks.

All of the units mentioned above received the status of legal entities. Their previous scope of business activities has been enlarged to other enterprises and, as a result, created greater opportunities for further development.

The process of gaining independence by means of creating new enterprises has also encompassed manufacturing departments. Organisational restructuring of steel enterprises has also been conducive to a possibility of obtaining external capital. Finding investors for autonomous departments turned out to be a much easier task. In the majority of cases, the ironworks were the holders of stocks and share the separated units and a share of the generated profits was allocated to the steelworks.

Taking into account the vast expenditures of money necessary for the technological modernisation and the adjustment of the product line to the requirements of the market considerable capital investments had to be made. Due to a low budget, the former state-owned ironworks could not rely upon sufficient government subsidies. The transformation processes were financed with the money generated on the premises of the

enterprises themselves as well as credits taken from banks. In the course of time, it turned out that a number of enterprises were not able to finish the modernisation processes on their own. The external capital seemed to be the only solution to the financial problems. It was inevitable that the former state-owned enterprises undergo at least a partial privatisation. The privatisation processes were carried out in two stages. In the first phase, the former state-owned enterprises gained the status of partnerships with the Treasury being the owner. They were called state-owned joint-stock companies. A company created in such a way enters all legal relations the subject of which used to be a state-owned enterprise. Up till now, all the ironworks in the Upper Silesia District have attained the status of trade law companies, which entails that they have undergone this phase of the privatisation process. It should be mentioned here that the process was a longitudinal one. Huta Katowice (The Katowice Ironworks) was the first enterprise to have been commercialised (1991) with the Baildon and Celder Ironworks being the last ones (1999).

The completion of the privatisation procedures enabled the management of the ironworks to embark on a look out for external investors for whom, according to the privatisation principles, the Treasury was to make the majority shareholding available. Some ironworks were privatised as a result of an agreement between the enterprises and their creditors. Among the ironworks we may enumerate Huta Batory (The Batory Steelworks) and Huta Jedność (The Jedność Steelworks). The process entailed a conversion of the company's debt into the company's stocks. All the debtors being in possession of at least a total of 30 percent of the required debt value of a state-owned enterprise or a state-owned joint-stock company by 31st of December, 1996 were entitled to apply for a conversion of the debt into the company's shares. On the basis of this it can be concluded that conversion is a much more simplified privatisation procedure. The Katowice Ironworks, the Florian Steelworks, The Cedler Steelworks, the Łabędy as well as the Baildon Steelworks are the only remaining steelworks in the GOP district with the Treasury being still the sole proprietorship. The Buczek Ironworks together with The Ferrum and Pokój ironworks have been incorporated into the National Investment Fund Programme. In 1997 the Ferrum Ironworks entered the Warsaw Stock Exchange by issuing two series of stocks. However, some enterprises found their strategic investor at different levels of the company's advancement in the privatisation processes. Among the major investors, we may enumerate the following companies: Stalexport S.A., (Stalexport Partnership), K.F.I. Colloseum Ltd, GEMI, Ltd. The employees of the ironworks being privatised were given an opportunity of taking over 15 percent of the company's stocks.

The GEMI, Ltd became the owner of the Łaziska Ironworks by means of purchasing its debts from the Upper Silesia Power Plant. For the time being, GEMI, Ltd has been in possession of 55 percent of the stocks. The Gemi Company has been importing ferroalloys for many years now. The overtaking of the shares was a natural outcome of the company's previous profile. Huta Łaziska (the Łaziska Ironworks) has been the only domestic enterprise manufacturing ferroalloys that constitute the basic raw material inevitable in the steel casting processes. In 1999 Colloseum, Ltd, a financial investment consortium purchased over 60 percent of the stock of the Pokój Ironworks. The company has also been interested in purchasing a shareholding of the Ferrum and the Buczek Ironworks. The main purpose of Colloseum is to gather a number of

enterprises that would participate in the privatisation and modernisation processes of power engineering. The aim of the investments made so far has been to form a strong capital group that would be based on the manufacturing and product line capacities.

Stalexport, S. A., as the major steel trading company, has co-operated with the Polish steel and ironworks from its beginnings. As a result of a mutual agreement, Stalexport, S. A. became a shareholder of the Jedność and the Batory ironworks. Until recently, it has also been in possession of the majority of the shares of the Gliwice Ironworks. It has been the strategic investor in Elstal-Łabędy company, the largest steel plant with electric arc furnaces in the GOP district. Furthermore, Stalexport S. A. has been a guarantor of many bank credits taken by ironworks. As a result of a compound, a part of the steelworks' shares were taken over by other enterprises. Among others, we may list the following enterprises: Polskie Górnictwo Nafty i Gazu (Polish Oil and Gas Mining), Bank Śląski (Śląski Bank), other steel trade centres as well as the steelworks themselves, especially the Katowice Ironworks. The companies are mainly either creditors or suppliers of input materials to whom ironworks have still financial commitments. Apart from the privatisation of the whole enterprises, steelworks have been searching for external investors for selected departments that are in turn transferred into independent legal entities. In this way the Ferropol Company was created in 1991. Recently, more and more departments have been incorporated into the process as it has been considered an easier way of finding investors. Some ironworks together with external investors have been setting up new enterprises unrelated to the former manufacturing departments. Among such companies we may enumerate the following ones: Elstal-Łabędy (based on the capital of Łabędy ironworks and Stalexport), Florprofile- Florian Ironworks with Austrian capital.

Among the still unfinished investments we may enumerate the following: the Jedność Rolling Mill the Kulczyk Holding Company, Stalexport, the Śląski Bank and others. In that case, upon the completion of the investment, a liquidation of the Jedność Ironworks has been planned to be carried out and its production will be transferred into the Jedność Rolling Mill. Among various organisational transformations, we may also enumerate the changes of the selling techniques. The free market economy necessitated the development of some special units responsible for the product sales and the setting up of marketing departments. The marketing departments would be responsible for carrying out market needs analyses and finding demand niches for steel products. A number of companies set up their own networks of dealers responsible for the product sales.

There has been a radical change in the demand for metallurgical products. The majority of the newly created domestic industrial enterprises manufacturing on the basis of metallurgical products had to import semi-products. It mainly applied to the highly modified products made of high quality steel, e.g. it applied to the car industry. At the same time, there were not enough purchasers for the large part of the domestic production of the metallurgic goods. The situation was a direct outcome of the cutback in the number of orders made by the former regular customers. The state was reflected by a rapid drop in the production of the final goods that triggered off a slump in the production of steel and pig iron throughout the raw products departments of metallurgical enterprises. A strong need for becoming a part of the market created a necessity to formulate a cohesive strategy for the development of the

Polish metallurgy in terms of the product line structure. On the basis of its structure a number of repair programmes for steel enterprises were prepared. One of the more important assumptions of the repair programmes was to define the proper section of the steel products market, a well-suited one for a particular steel works. The planned specialisation of steel enterprises has been presented in table 1. A distinct regularity has been observed within the product line specialisation throughout steelworks. In this respect, the greatest modifications have been introduced in the raw products departments. A considerable decrease in the number of steel plants has been observed throughout the GOP district. Apart from closing the last remaining Siemens-Marten's furnaces, no further changes have been planned in the manufacturing departments for the next few years. However, alterations will be introduced to the flat-rolled steel products across the flat-rolled and long steel products departments. Recently, there has been a strong tendency to develop the production capacities in the production of steel sheets. At the same time, a number of restrictions are to be imposed on the production of steel profiles. All these alterations will eventually lead to a change in the spatial production structure of the manufacturing departments throughout steelworks.

Table 1 The assumptions of the target specialisation within the product line throughout the steelworks of the GOP District according to the repair programmes introduced to the Polish metallurgy

No.	Enterprise	Production profile
1	Huta Baildon	steel slabs, cold rolled plates in sheets, welding wires, rods and bars
2	Huta Bankowa	square and flat rods, bars, seamless ring, railway wheel
3	Huta Batory	steel in ingots in electric arc furnace, seamless tubes for pipelines
4	Huta Buczek	welded steel pipes and seamless tubes
5	Huta Cedler	wired rods, welding wires
6	Huta Ferrum	welded steel pipes
7	Huta Florian	cold rolled plates in sheets, welded steel pipes
8	Huta Gliwice	railway wheel tyres, tramway tyres and railway accessories
9	Huta Jedność	seamless tubes (in future moving the production process to WRJ)
10	Huta Katowice	steel slabs, cold formed and hot rolled profiles, plates in sheets
11	Huta Kościuszko	hot rolled profiles and bars
12	Huta Łabędy & ELSTAL	steel slabs, hot rolled plates in sheets, hot rolled profiles and rods
13	Huta Łaziska	ferroalloys in electric arc furnace
14	Huta Pokój	hot rolled plates in sheets, cold formed and hot rolled profiles

Source: Program Restrukturyzacji Przemysłu Hutnictwa Żelaza w Polsce, IMŻ 1998

Changes within the technologies of manufacturing goods in ironworks

The state-of-the-art technological lines as well as the modern equipment used in the manufacturing of steel products constitute the decisive factors for the production costs that in turn determine the sales possibilities for steel products on the market (Fig. 2). The role of the modernisation processes as an adjustment to the market requirements

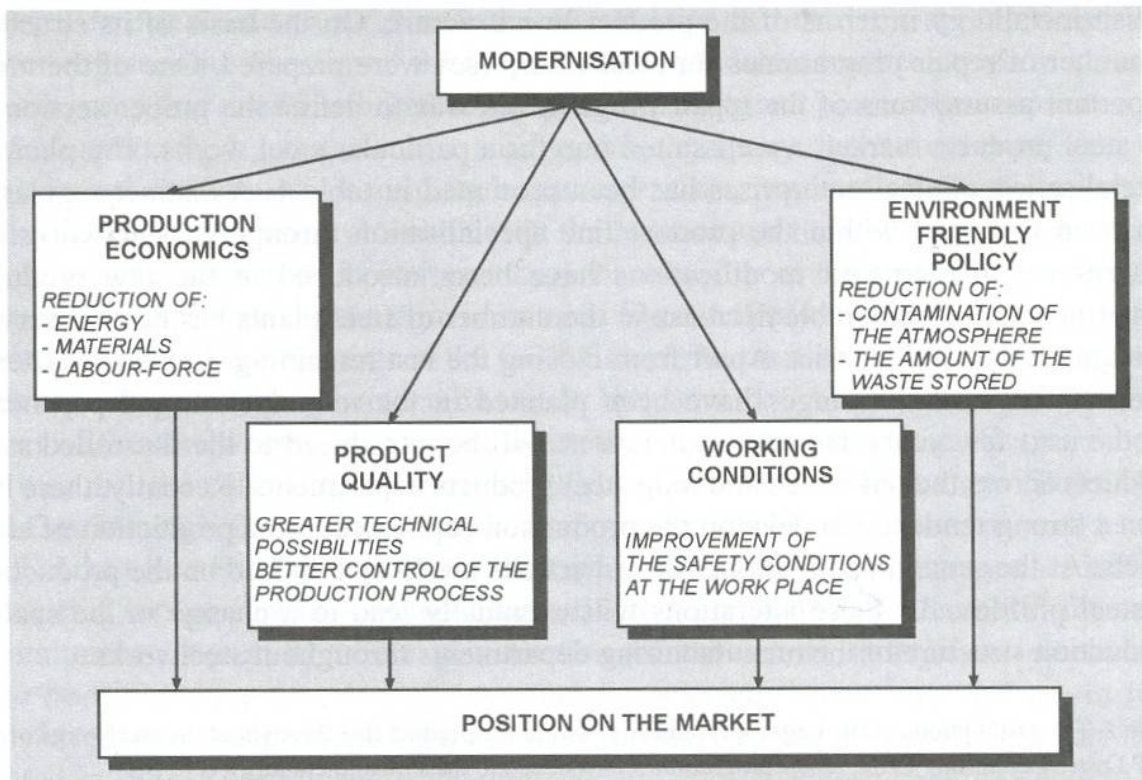


Fig. 2 Scheme of the influence, the modernisation of the production technologies has on the market position
Source: Own compilation

was noticed at a relatively early stage. Ever since the 70s, the Polish metallurgy has been introducing changes in that respect on a much larger scale. The main purpose behind the introduction of the innovations was to improve the quality of the products obtained. The ecology and economics of the production processes as well as the working conditions were of little significance at that time. The vast majority of the planned or the already commenced investments were prevented mainly by the crises of the 80s.

As a result of the economic transformations taking place at that time, the majority of the enterprises faced the necessity for replacing the previous manufacturing equipment with the more effective gear. Up till the mid-nineties, steel products throughout the steelworks in the GOP district (except for the Katowice Ironworks) were manufactured in the already old fashioned Siemens-Martens furnaces. Electric-arc furnaces were still in the minority when compared with Siemens-Martens furnaces and the percentage of the amount of steel cast in them was even smaller.

Nowadays, modern world metallurgy steel is cast in either convertive or electric processes exclusively. After the introduction of the modernisation processes in the steel departments the situation of the metallurgy within the GOP district (Fig. 3) resembles the world metallurgy in this respect. The saturation of the steel market and the increasing competition coerce an increase in the productivity and a reduction of the production costs in the world metallurgy. It has been manifested in the development of modern production technologies as well as increasingly the integrated processes of both steel manufacturing and processing. All of the processes aim at an increase of the

final products with a reduction of the production costs at the same time. Continuous steel casting (CSC) is one of the technologies. Due to the application of continuous steel casting technology, the average output of the final products measured as a ratio to the amount of liquid steel in a tub has risen from 76 percent to the level of 80 percent (Gabelus, Bulkowski, 1998). The application of the continuous steel casting technology resulted in an increased production of steel slabs for the last few years in Poland.

Prior to the year 1989, it were only the Baildon and the Jedność Steelworks that had such equipment installed throughout the GOP district. The liquidation of the



Fig. 3 Distribution and characteristics of steel plants throughout the steelworks of the GOP district in 1989 and 1999

Source: Own compilation on the basis of IMŻ data

majority of the old and the less efficient Siemens and Martens furnaces accompanied by launching a couple of new furnaces with the continuous steel casting line as well as the instalment of such equipment in the Katowice Steelworks considerably increased the amount of steel being cast in a continuous manner. Both the characteristics of the continuous casting equipment and the date of its launching have been compiled in table 2. An insufficient amount of funds for modernisation investments being the most expensive part of the restructuring programme has constituted the major hindrance to the modernisation processes carried out in the branch of metallurgy. Among the potential sources of financing the modernisation processes the following ones may be enumerated: the company's own financial resources, bank credits, external investors, budget funds, auxiliary funds, issuing stocks and bonds, the Environment Production Fund. The future of particular enterprises depends to a large degree on a successful completion of the modernisation processes.

Table 2 Characteristics of the continuous steel casting (CSC) equipment throughout the steelworks of the GOP District

Foundry	Facility supplier	Starting date of the production	Specification of CSC	
			Production capacities	Steel plant, numbers of furnace
Jedność	Biprohut	1962	100	Simens-Martin 1
ELSTAL	Concast Standard AG	1995	350	electric arc 1
Baildon	Voest-Alpine-Industrieanlagenbau	1996	60	electric arc 2
Katowice	Mannesman Demag	1995	1600	converter 2
	Concast Standard AG	1998	1400	

Source: Grabelus J., Mazur A., Szulc W., 1997, and the materials of the H. Katowice

Employment reduction in steelworks

In order to obtain full efficiency in both technical and technological modernisation processes in metallurgy, it is essential that a parallel restructuring of employment should be carried out. Taking into account the fact that modern technologies are characterised by a high degree of automatisisation of the equipment and their efficiency, many hitherto existing posts have been made redundant. To a large extent, physical work has been taken over by machines, which resulted in the reduction of the amount of labour required for the production of particular goods. At the same time, the situation demands a continual raise of the employees' qualifications in order to be able to operate more and more technologically advanced equipment. The problem of the employment restructuring in metallurgy has constituted one of the most important factors affecting the economic efficiency of the enterprises. However, taking into account the social consequences resulting from the reduction in the number of job vacancies, the issue has been considered one of the most difficult and sensitive ones.

Reaching a consensus among the three parties concerned, i.e. the government, the management of the steelworks as well as the Trade Unions within the steelworks seems to be a sine qua non condition for the solution of the problem. Any disapproval of the alterations being introduced, shown by any of the parties involved, may run the risk of creating numerous obstacles or even jeopardise and prevent a successful completion of the process. Controlling the consistency of both the economic and social activities is one of the state's responsibilities. The state cannot allow the processes to go without its co-ordination and at the same time hope to be successful in that respect. The fact that the state is still the proprietor of the majority of shares in numerous enterprises within the metallurgic sector constitutes another obligation for the state. There is an urgent need for an informative programme to be incorporated on the level of steel enterprises. The programme should consist of various articles, meetings, as well as a system of co-operation and consultation series with the Trade Unions and the representatives of the employees. The main purpose of the afore-mentioned undertakings would be to explain the restructuring processes to the employees. One of the main aims is to make the staff aware of the necessity for the restructuring processes. Apart from the informative nature of the programme, the management of the enterprises should introduce some tools necessary for a social dialogue. The required tools are to unite all the parties concerned but first of all they should make enough space for the negotiating conditions as well as the manner of carrying out the restructuring procedures. During the restructuring processes the authorities of Trade Unions should be characterised by a unanimous approach as far as finding solutions to the employment problems is concerned and the necessity for convincing the Trade Union's members about the right measures being taken. Shop stewards seem to play the key role in the achievement of the above mentioned goals. The problem of excessive employment in the Polish metallurgy appeared as early as in the late 1980s. The employment rate was reaching almost 150 thousand employees. At the same time, the demand for metallurgic products on the market did not account for such employment potential.

The excessive number of people employed in metallurgy was closely connected with the organisational structure of the enterprises. Both canteen staff and the employees of transport units were considered to be founders.

The restructuring processes resulted in a considerable employment drop in the steel and iron metallurgy between the years 1989 and 2000 (Fig. 4). During this period, four major stages were distinguished in the reduction of the number of job vacancies.

In the first period, that is prior to 1992, a steady decrease in the employment rate could be observed. It was an almost 25 percent drop, which in numbers gives about twenty thousand people.

Changes in the above mentioned legal regulations enabled an introduction of taking early retirement leaves as well as laying employees off and paying them relevant redundancy payment. In the majority of cases, senior workers with a greater length of service were made redundant in the first place with redundancy payment being made. At the same time, no recruitment of new staff was carried out.

The years between 1993 to 1995 have been characterised as a period of stabilisation in terms of employment.

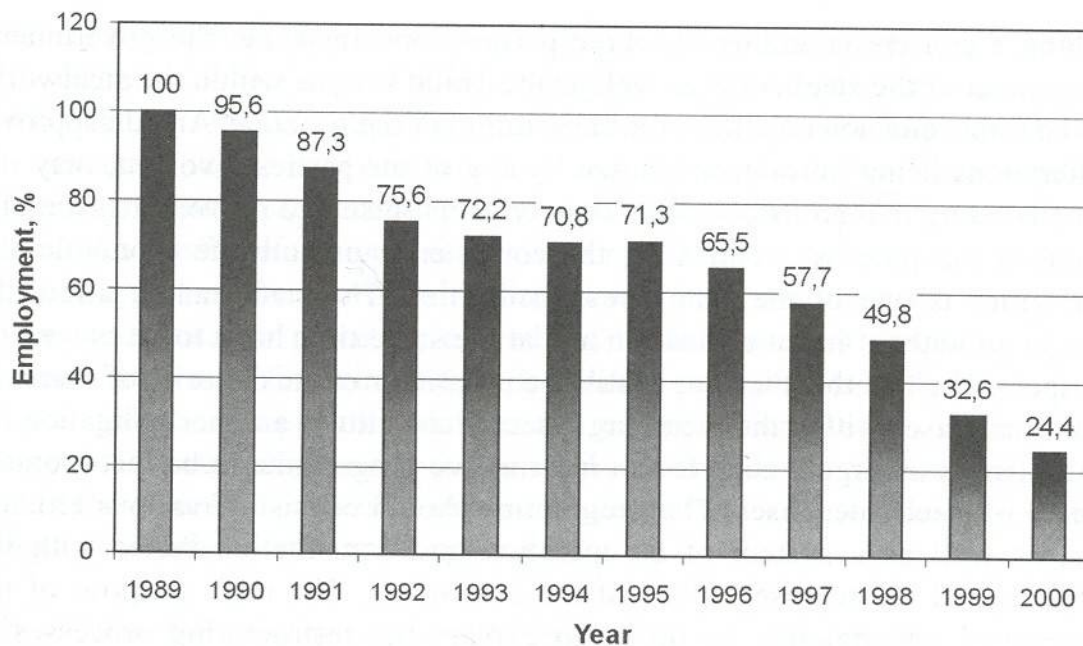


Fig. 4 Change of the employment rate in the metallurgy of the GOP district

Source: Own compilation on the basis of Paduch J., Barszcz E., and the materials of the enterprises

Some enterprises even increased slightly the employment rate in a transitory manner in those years. To a large degree, it was closely connected with using up all the possibilities of taking early retirement as well as small organisational changes enabling employees to join the newly created independent companies. At the same time, the management of steelworks tried to avoid group redundancies.

The second intensification of employment redundancies took place between the years from 1996 to 1998. During that period, the majority of steelworks obtained the status of joint-stock companies. Some steelworks that previously belonged to the Treasury changed their owners, which caused an intensification of transformations within their structures. The alterations, in turn, enabled further reductions of the employment rate within steelworks by means of reshuffling a part of the staff into independent legal entities formed within the former departments. Staff reshuffles exercised the greatest influence on the reduction of employment throughout steelworks.

After 1998, there was a slump in the employment rate. Partly, it was a direct result of the introduction of further legal measures that aimed at minimising the social disadvantages of making employees redundant. It was also in this period that the organisational transformations resulted in the major reduction of the employment rate.

Environment protection activities across ironworks

The growth of the ecological awareness was relatively late in comparison with the development of the metallurgy manufacturing that dates back even to the 18th century.

All over the world the first voices regarding the environment degradation and the necessity for its restriction were raised only from the late 1950s onwards.

In the block of the socialist countries the awareness of the threat resulting from the excessive environment pollution spread at an even later period of time. In fact, it was only

in the last decade of the 20th century that the ecological awareness brought about a number of conspicuous effects on a larger scale. At that time, the most burdensome enterprises or their departments for the environment were being closed. The still functioning enterprises were charged either with high fines or exploitation fees for causing the pollution of the natural environment. The reduction of the emission of dust and gases into the atmosphere as produced by ironworks in 1990s has been presented in Figure 5.

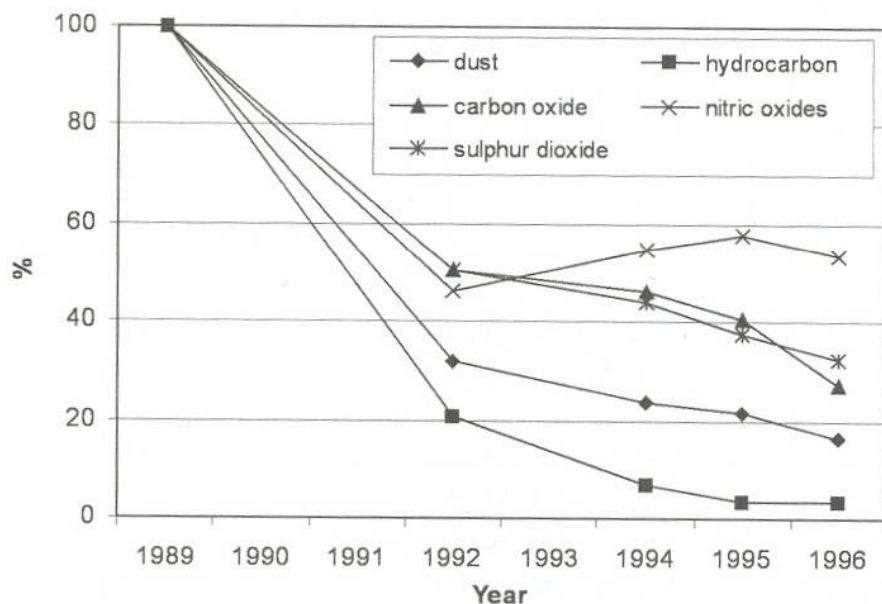


Fig. 5 Contamination of the atmosphere induced by the Polish metallurgy in the years 1989–1996 in comparison with 1989

Source: Own compilation on the basis of IMŻ data

Due to the high concentration of industry in the GOP district, metallurgy being the major branch, all the disadvantages connected with the contamination of the natural environment have been particularly felt. High concentration of the industry added to a considerable ecological degradation in this area.

The environment pollution induced by iron metallurgy has been caused by:

- the emission of dust and gases into the atmosphere,
- the storage of environmentally burdensome waste materials on slag dumps,
- the release of sewage into surface waters.

Raw products departments have been considered to be the major sources of the afore-mentioned types of environment pollution. In turn the decisive factors in the emission of particular gases within the raw products departments are the following:

- power plants – CO, SO₂ and NO_x,
- blast-furnaces – CO,
- coking plants – hydrocarbons.

In the 1990s, the degree of the influence exerted by the iron metallurgy of the GOP district on the natural environment was changed to a large degree. The change was a direct consequence of the liquidation of many agglomerating plants, both the pig iron and steel departments as well as the coking departments existing up to the time, i.e. up to the 1990s.

Nowadays, Huta Katowice (the Katowice Ironworks) is the only company with a full production profile in the GOP district. The instalment of pro-ecological equipment in the assembly line makes the Katowice Ironworks one of the best assessed enterprises in terms of its negative influence on the environment among all the Polish steelworks with a full production profile.

Conclusions

Taking into account the economic potential, its significance to the Polish economy as well as the country's defences the steel and iron metallurgy has been considered an industry of strategic significance both in Poland and in other countries. Steel products constitute the basic materials used in the majority of the national economy sectors. The price and the quality of steel products to a large degree determine the competitiveness level of many goods manufactured on the world's markets.

The steel and iron metallurgy entered the transition period of the political system in Poland with excessively expanded production capacities. Moreover, the structure of the product line turned out to be an ill-suited one, not adjusted to the actual needs of the market. In fact, the product line demanded large amounts of both energy and materials to be used as well as high labour force. Taking into account the factors mentioned above, in December 1992 the government of the Republic of Poland adopted a strategy for the restructuring of the Polish steel sector. A Canadian consortium formulated a study entitled 'Restructuring the steel and iron metallurgy'. One of the basic assumptions of the strategy adopted was to restructure the Polish metallurgy both technologically and organisationally so that the metallurgical products manufactured in Poland reach international competitiveness at least on the Polish market. According to the other assumptions of the strategy, the metallurgic production should be economically efficient and it should do hardly any damage to the environment. In order to attain the goals it was necessary to:

- adjust the product line and the quality of the manufactured goods to the current demands of the world's market,
- modernise the production technology,
- adjust the production capacities and employment possibilities to the actual needs of the market.

The first task among the restructuring processes on the part of an enterprise itself was to formulate its own strategy in accordance with the overall assumptions of the government's programme. The company's strategy was to concern:

- the steel market sectors the enterprise would be targeting at,
- the product line of the goods being manufactured,
- the organisational structure of the enterprise that would ensure the best realisation of the programme,
- the search for both internal and external sources for financing the restructuring processes,
- the reshuffle of staff in particular organisational units.

The realisation of the programme and a partial verification of its assumptions indicated a need for taking some measures that would both support and protect the

process of structural changes within the sector. It is essential that the activities should be in compliance with the law and the international agreements. Supportive measures seem to be inevitable for achieving the ultimate goals of the restructuring processes as well as protecting the degree of advancement in terms of the technological modernisation. However, up till now, the transformational processes in the majority of the steelworks throughout the GOP district have not been finished yet. Some enterprises spent all the financial means available to them up till now on the restructuring processes. In order to finish the modernisation processes, steelworks need further investments either from their present owners or from new investors. Taking into account the amount of the necessary investment funds, further modernisation of the Katowice Ironworks is likely to present the biggest problem.

In order to make the Katowice Ironworks fully competitive, it is essential that the financial commitments are paid back and an integrated line for steel casting and steel blade rolling is installed, which would be the completion of the main investment within the manufacturing sector of the steelworks.

Those steelworks that have finished the modernisation of the main production stages are in the optimal situation. They do not have to incur such high investment costs and they can develop further on the basis of the generated profits. The steelworks being in the process of the modernisation are mainly in high debts and they lack funds for the completion of the investments. With a lack of financial support on the part of the owners the steelworks are bound to go bankrupt. Due to the macroeconomic situation, the problem is even more complicated. High interest rates make credits even more expensive, which exercises an unbeneficial influence on the financial situation of the steelworks being already in the red.

The situation calls for quick measures, because the lack of co-financing steel enterprises deteriorates their competitiveness, which eventually may lead to their elimination from the markets.

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