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The hard coal industry in Poland: 1990 to 2020

The article analyses the changes that have been taking place in the hard coal mining sector since 1990, i.e. since the departure from the economy in the central planning system and the transition to market economy. In the article the following periods are specified: the economic transformation and the high dynamics of changes in the mining sector that took place during this period (1990–2002), the process in the mining industry was closed by the mining reform carried out in 2003, the period of stabilisation that took place in the mining industry after the 2003 reform and the image of the mining industry after 2015.

Key words: *economic transition, mining reform, employment restructuring, mine closures, exports imports*

1. INTRODUCTION

There have been many attempts to repair, sanitise and reform the Polish coal mining industry in the past thirty years. Initially the authors intended to entitle this article “The Polish mining industry in the years 1990–2020 from crisis to crisis”, but after giving it some thought we came to the conclusion that the coal mining industry cannot be seen as an isolated sector of the economy. In the 1990s the Polish economy was transformed from a centralised economy into a market economy. From the economic processes taking place in those years, we have identified those that, in our opinion, exerted an impact on the coal mining industry:

- large drops in production, as a result of opening the market to imported products,
- rapid reduction of the energy intensity of the economy,
- liquidation of large farms (State Agricultural Farms),
- reduction of the demand for system heat as a result of metering of flats and increased rate of thermal insulation of buildings,
- bankruptcy of a large number of enterprises,
- energy poverty of a significant part of the population,
- state interference in coal exports and the setting of coal prices by the state between 1990 and July 1992.

We propose to look at the past thirty years in the following order:

- 1) the period of 1990 to 2002 (years of transformation of the economy) considering measures taken by successive governments towards the coal mining industry [1],
- 2) period of 2003 to 2014 [2],
- 3) period of 2015 to 2019 [2],
- 4) the post 2020 period, mining in its phasing out period.

The data presented in this article come from own resources of Industry Development Agency JSC (IDA) – Katowice Branch and have been compiled in the presented figures for the purpose of this article.

2. THE PERIOD 1990–2002

In this period, the Coal Community was established, Coal Exploitation Companies (PEW) were dissolved, the mines were granted freedom of economic activity in 1991, and in 1993 Katowicki Holding Węglowy S.A. and Coal Mining Companies (6 companies) were established. In 1993, 1995 and 1998, unsuccessful attempts were made to reform the mining industry so as to enable it to operate under

the conditions of a market economy (budget subsidies and annulments – in total, in the years 1990–2002, state aid amounted to PLN 16.5 billion, of which PLN 11.1 billion in subsidies – data from the Industry Development Agency JSC (IDA) Katowice Branch), while the state setting coal prices and interference in coal exports limited the freedom of mines to operate on the market. It should be mentioned that until December 1990 official prices were in force, when the departure from official prices for hard coal was announced and an obligation to inform tax offices about increases in hard coal prices was introduced – this lasted until July 1992. In December 1990, hard coal was made subject to export restrictions in the form of the requirement of permits for each contract. This situation continued until July 1992, a period which saw hyperinflation in Poland. Maintaining prices at a constant level hit the mining industry hard, while it was necessary to purchase machinery, equipment, services etc. which were realised at market prices. Restrictions on exports prevented the mines from executing profitable export contracts. The years 1990–2002 have been divided into three periods, but they all relate to the time of the transformation, so they are included in the period between 1990 and 2002.

2.1. Period from 1990 to 1993

From the dissolution of PEW to the establishment of Coal Companies and Katowicki Holding Węglowy S.A. employment (Fig. 1) decreased from 387,900 to 311,300, so by 76,600 (i.e. 19.75%), the number of longwalls (Fig. 2) was reduced by 221, which was a percentage reduction by 28.9% of active longwalls,

three mines were put into liquidation (Fig. 3), coal production was reduced (Fig. 4) from 147.4 million tonnes in 1990 to 130.2 million tonnes in 1993, i.e. by 12.1%, the productivity per employee (Fig. 5) increased from 380 to 407 tonnes / year, the working shifts availability at the longwalls increased from 2.18 to 2.45 (Fig. 2), investment expenditure (Fig. 6) increased from PLN 241 million to PLN 647 million, and during this period, PLN 1.958 billion was allocated to investments in total. Unfortunately, we do not have specific data on which investment targets the funds were allocated. In turn, coal stocks (Fig. 7) increased from about a million tonnes in 1990 to 4 million tonnes in 1992, and then decreased to 700,000 tonnes in 1993 (we suppose this is related to the establishment of coal companies and the signing of agreements with creditors. The Katowice Branch of the IDA (JSC) does not have data on the volume of coal imports and exports (Fig. 8) in the years 1990 to 1992, for the entire period from 1990 to 1993 we observe a higher rate of growth of liabilities than receivables (Fig. 10), and thus an unfavourable increase in the balance (Fig. 10) of liabilities to receivables in 1993 we recorded a balance of – PLN 3.465 billion. Throughout this period the net financial result of the mining industry (Fig. 11) was negative and in 1993 it reached a level of – PLN 1.5 billion. It is also difficult to assess what impact export restrictions and the price of coal set by the government had on the mining industry's net result, and to what extent the compensation paid covered the mining industry's losses. The changes that were taking place at that time were transformational in nature (a large decrease in production, concentration of extraction, a high decline in employment).

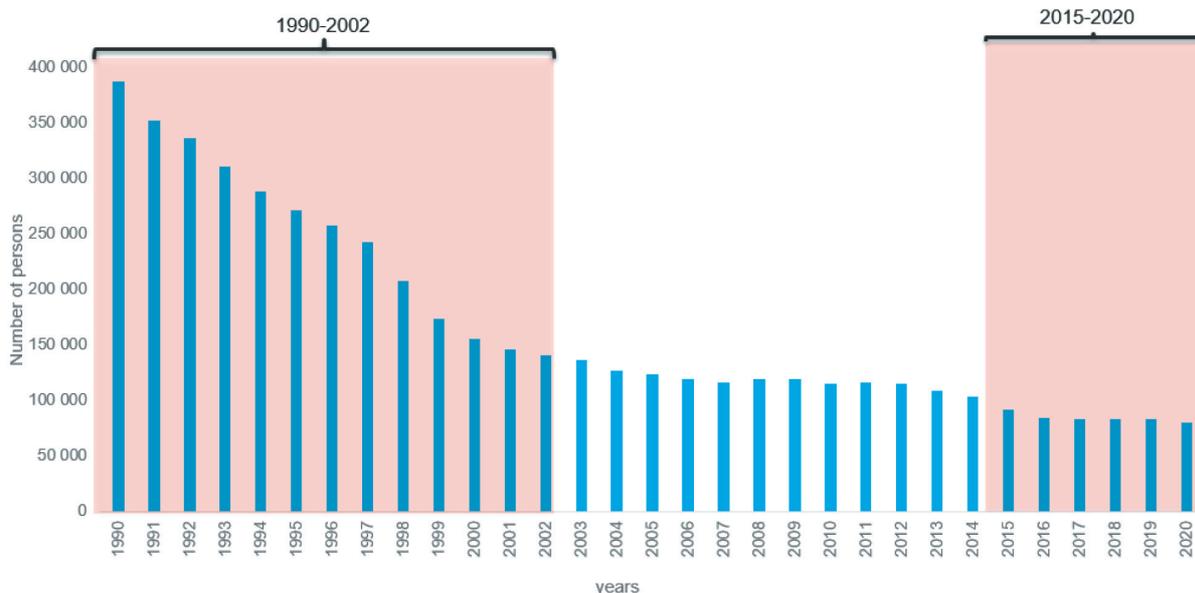


Fig. 1. The employment in 1990–2020 [3]

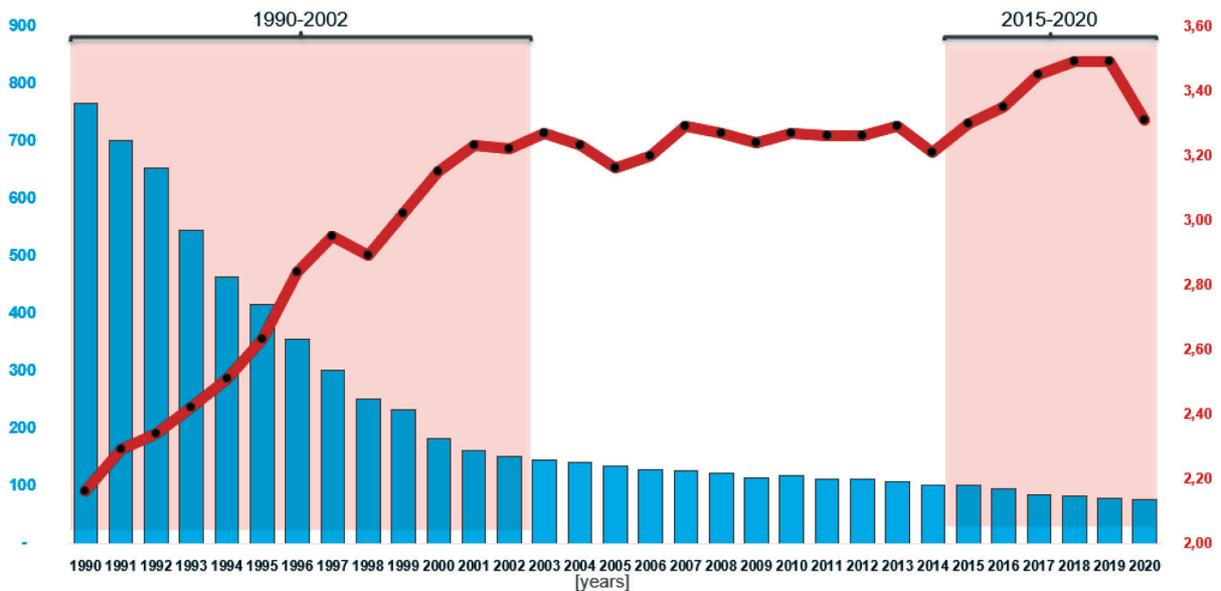


Fig. 2. The average daily number of active longwalls and working shifts availability in 1990–2019 and 2020 [4]

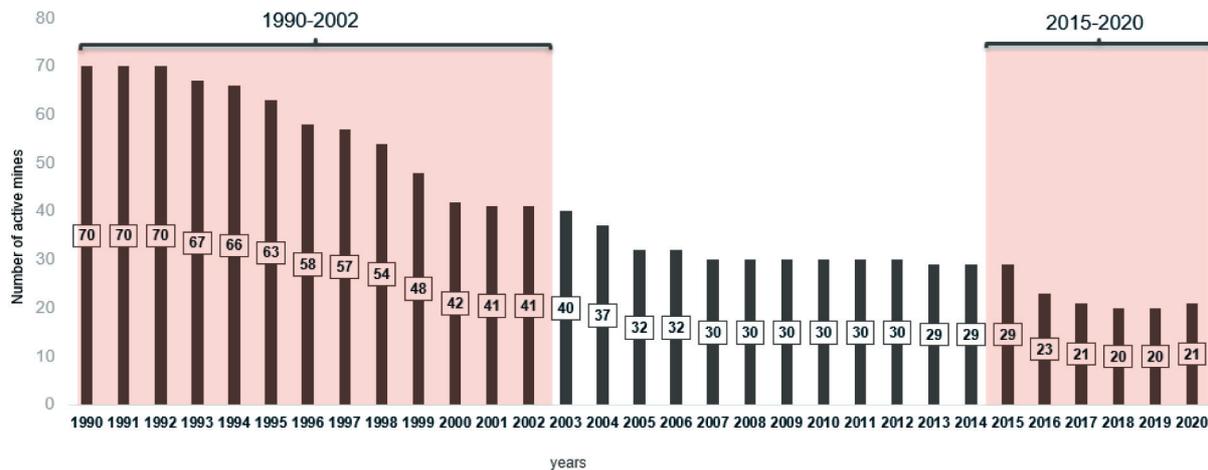


Fig. 3. Number of active mines in 1990–2020 (as of the end of the year) [3, 4]

Such changes were taking place within the whole economy, while at the same time the financial results achieved indicate that the changes were not sufficient, which may be associated with the difficulty of forecasting demand for coal on the domestic market, as well as high resistance of trade unions with regards to the changes introduced. The state aid granted in the form of subsidies and annulments was also insufficient and amounted to PLN 2.150 billion (own data of the Katowice Branch of the IDA (JSC)).

2.2. Period from 1993 to 1998

Employment (Fig. 1) during this period decreased from 311,300 to 207,900 (i.e. by 33.3%), the number of longwalls (Fig. 2) decreased from 545 in 1993 to 252 in 1998 (i.e. by 53.8%). Within this period

13 mines were put into liquidation (Fig. 3), with 67 mines in 1993 and 54 mines in 1998. Coal production (Fig. 4) after an increasing trend until 1997 (where it reached 137.1 million tons) dropped in 1998 to 116 million tons, productivity per worker (Fig. 5) increased from 407 tonnes/year in 1993 to 516 tonnes/year in 1998, with the highest productivity in that period recorded in 1997 at 561 tonnes/year. The shift availability of active longwalls increased (Fig. 2) from 2.42 at the beginning of the period to 2.89 in 1998.

Investment expenditure (Fig. 6) rose to PLN 836 million in 1998, with PLN 503 million spent on mining equipment, stocks (Fig. 7) increased from 700,000 tonnes to 3.5 million tonnes, exports (Fig. 8) fluctuated between 24.5 and 32.3 million tonnes over the period, with imports (Fig. 8) rising from 1.0 million tonnes in 1993 to 4.0 million tonnes in 1998.

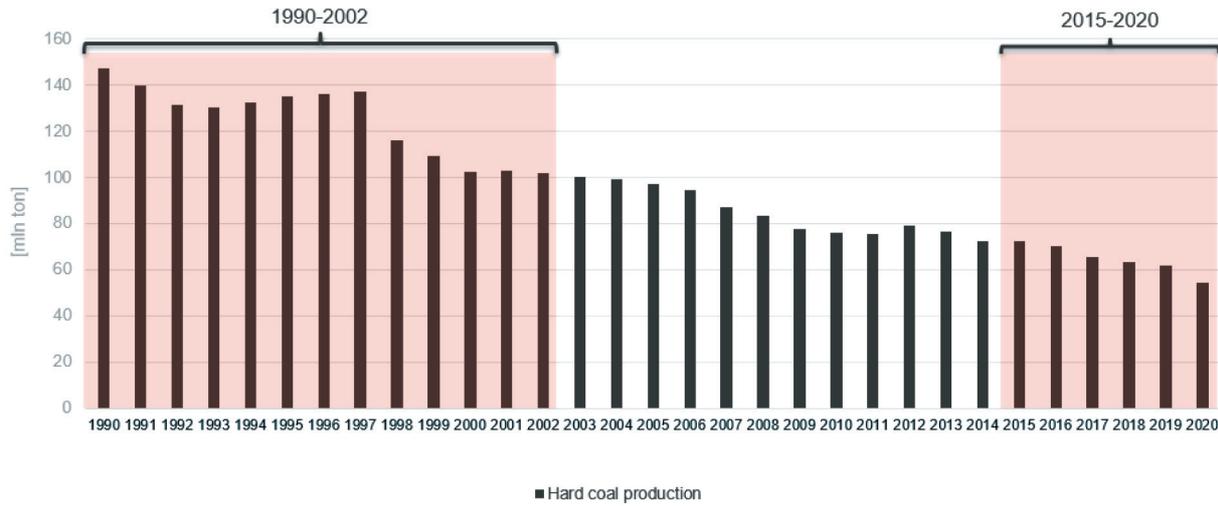


Fig. 4. Hard coal production in 1990–2020 [1, 2]

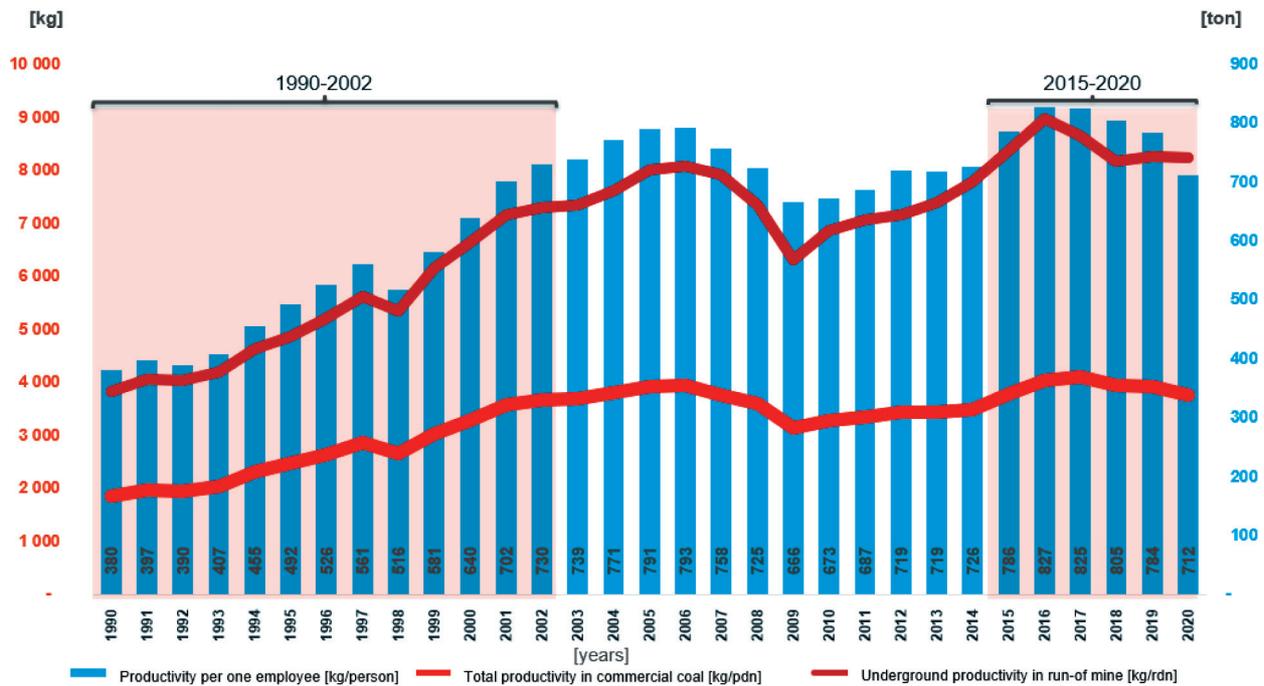


Fig. 5. Productivity in 1990–2020 [1, 2]

Over the whole period we can observe the growth of liabilities (Fig. 10) to the level of about PLN 16.52 billion in 1998, receivables (Fig. 10) grew more slowly, thus the balance of liabilities to receivables amounted to about PLN 13.21 billion in 1998. The net financial result (Fig. 11) was negative throughout the whole period, reaching the amount of PLN 4.27 billion in 1998. The changes which were taking place in the mining industry in that period were still of a transformational nature, and the state aid measures taken (state aid in that period amounted to PLN 6.11 billion – own data of the Industry Development Agency JSC (IDA) Katowice Branch) only mitigated the growing difficulties, but did not solve them. Neither did price compe-

titution and export barriers removal did not solve the problem (coal prices in 1998 were 10 times higher than in 1990 – Industry Development Agency JSC (IDA) Katowice Branch – Fig. 9). It seems that this situation was caused by the lack of stabilisation of the whole economy, which, in our opinion, was still in the period of transformation, and caused difficulties in balancing the demand for coal.

2.3. Period from 1998 to 2002

Another mining restructuring programme was implemented in 1998, as a result of which 13 mines were put into liquidation (Fig. 3) (1998 – 54 mines 2002 –

41 mines); the number of active longwalls (Fig. 2) fell from 252 to 151, i.e., by 40.1%, the shift availability of active longwalls (Fig. 2) rose to 3.1, in 1999 it exceeded 3. The number of active longwalls (Fig. 2) decreased from 252 to 151 longwalls, i.e. by 40.1%, the number of shifts (Fig. 2) at longwalls increased to 3.1, exceeding 3 in 1999; coal output (Fig. 4) decreased from 116 million tons to 102.1 million tons, i.e. by 12%; productivity per worker (Fig. 5) increased from 516 tons/year in 1998 to 730 tons/year in 2002, i.e. by 41.3% coal export (Fig. 8) decreased from 27.7 million tons in 1998 to 23 million tons in 2002; throughout the entire period the advantage of coal export over import remained above 20 million tons/year. Coal prices between 1998 and 2002 fluctuated from – 3.1% to +17.2% with respect to 1998 (Industry Development Agency JSC (IDA) Katowice Branch – Fig. 9).

Liabilities grew throughout this period, reaching over PLN 22.846 billion in 2002, while the balance of liabil-

ities and receivables exceeded PLN 20.3 billion, and the net financial result (Fig. 11) was positive for the first time in this period in 2001 (PLN (+)182.1 million), but in 2002 it amounted to PLN (–)656.8 million. Investment expenditure (Fig. 6) reached their maximum in 2001 and amounted to PLN 1.1 billion, whereas in the whole period PLN 2.664 billion was spent on the purchase of mining equipment. The changes that took place in the years 1998–2002 were transformational changes, which is evidenced by its scale and continuous character throughout the whole period, i.e., 1990–2002. State aid in that period amounted to PLN 8.2 billion (own data of the Industry Development Agency JSC (IDA) Katowice Branch). The aid was insufficient to restore the mining industry financially and get it out of debt and nor did the changes which were carried out lead the mining industry to economically effective functioning in conditions of a market economy.

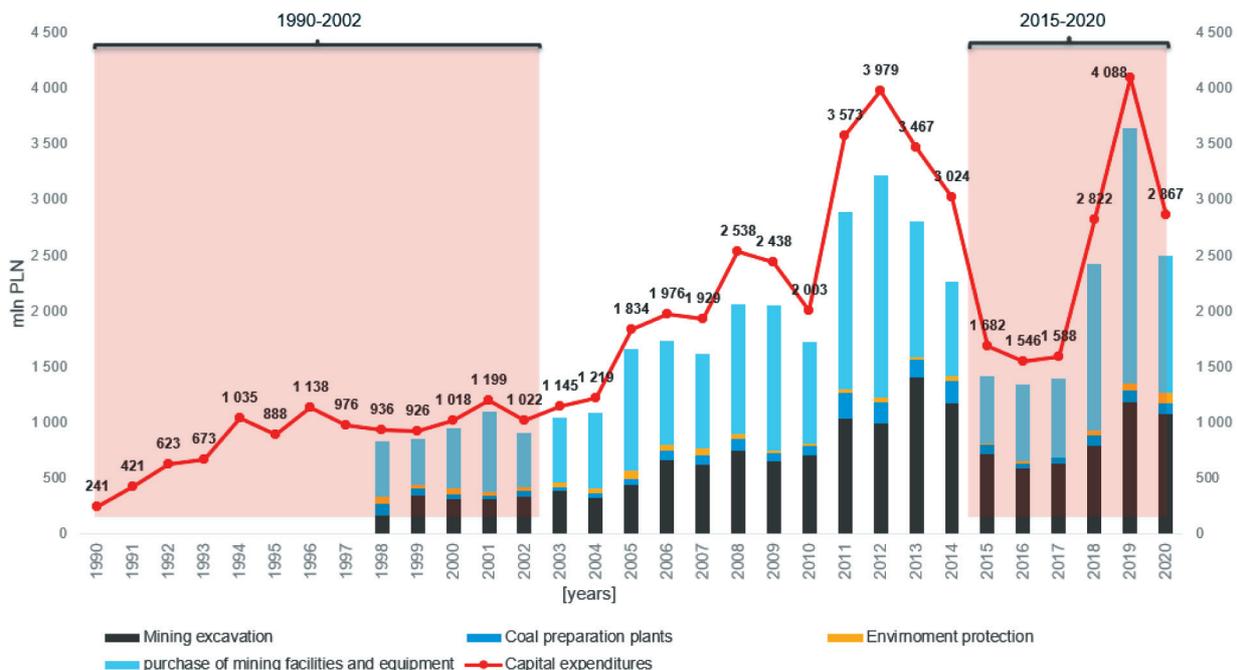


Fig. 6. Investment expenditures 1990–2020 [1, 2]

3. THE PERIOD 2003–2014

The hard coal mining reform was implemented in 2003, as a result of which coal mining companies (with the exception of JSW S.A.) were put into liquidation and Kompania Węglowa S.A. was established in their place. About PLN 18.1 billion of liabilities were annulled, repayments of another PLN 2.6 billion were postponed, and the Kompania Węglowa was recapitalised by means of an additional income

of PLN 952 million (in total, state aid in 2003 amounted to PLN 22.687 billion). By 2005, 9 hard coal mines were completely closed (from 41 in 2002 to 32 in 2005, see Figure 3), employment (Fig. 1) was reduced from 140.7 thousand people in 2002 to 123.4 thousand people in 2005. These measures enabled the mining industry to operate within free market economy conditions.

After 2005, 3 mines were closed by 2014 (Fig. 3), the number of active longwalls (Fig. 2) decreased by 41

(140 in 2004 to 103 in 2014, i.e. by 26.5%), the number of shift availability of active longwalls (Fig. 2) fluctuated above 3.2 throughout the period, employment (Fig. 1) decreased from 127.1 thousand people to 100.6 thousand people. The mining output (Fig. 4)

decreased from 99.2 million tonnes in 2004 to 72.5 million tonnes in 2014, i.e. 27.0%, productivity (Fig. 5) per employee in 2014 was 726 tonnes/year and only between 2009 and 2011 was it below 700 tonnes/year per employee.

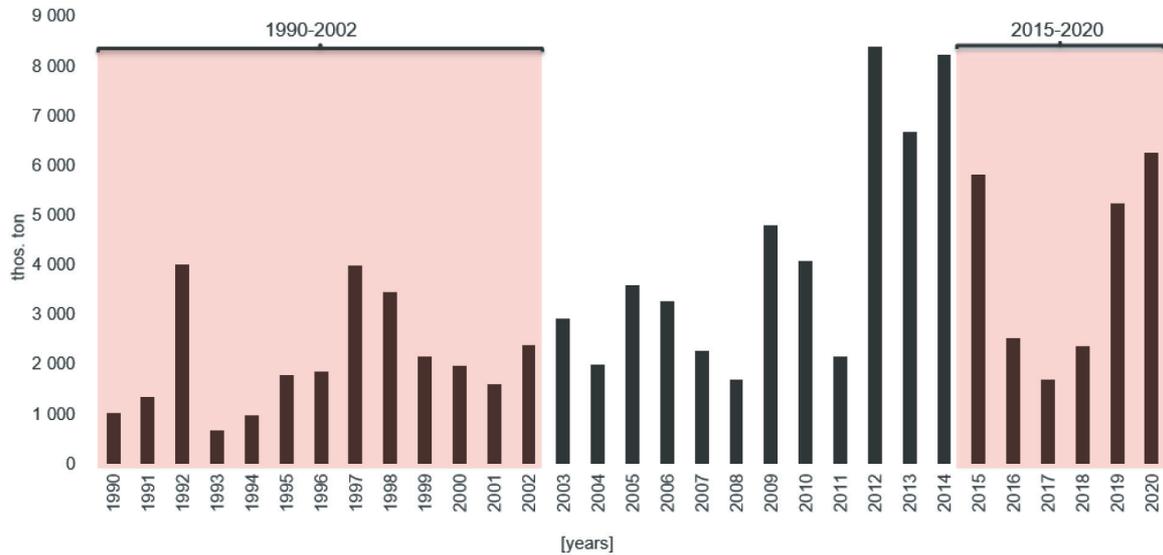


Fig. 7. The coal stocks in 1990–2020 [1, 2]

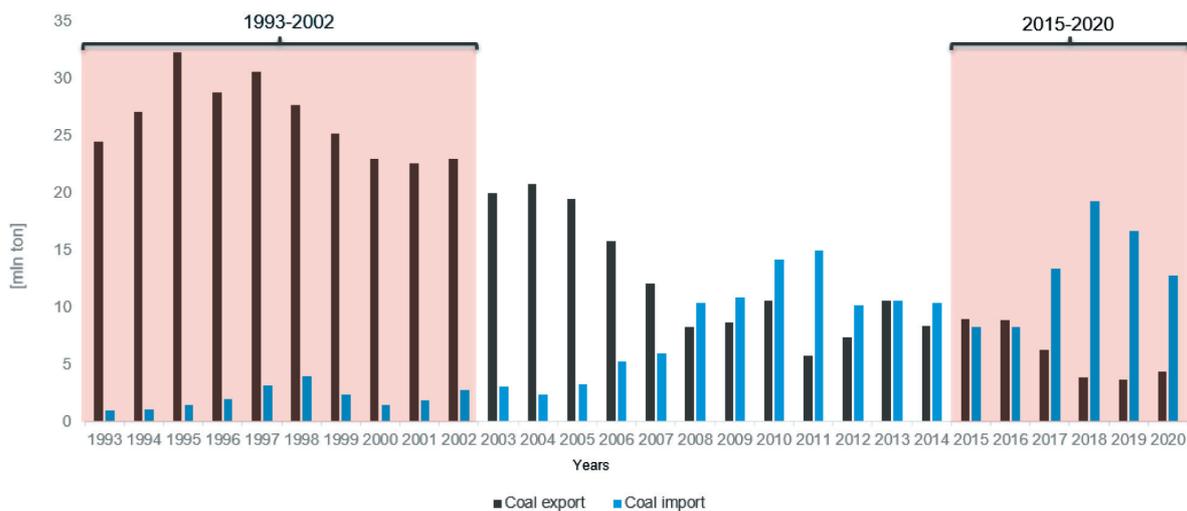


Fig. 8. Export and import of hard coal in 1993–2020 [3]¹

Export of coal (Fig. 8) in 2004 amounted to 20.8 million tonnes. In following years, the export volume decreased to 8.3 million in 2008, while imports (Fig. 8) increased steadily from 2.3 million tonnes in 2004 to 10.3 million tonnes in 2008. In 2008, for the first time in the history of the post-war Polish mining industry, imports exceeded exports (2.0 million tonnes), in the

following years until 2012, coal imports to Poland were higher than its exports, with imports reaching their highest level for that period at 15.0 million tonnes in 2011, with exports at 5.8 million tonnes. In 2013, exports slightly exceeded imports (by 100,000 tonnes) and 2014 ended with imports of 10.3 million tonnes against exports of 8.4 million tonnes.

¹ In 1993, an import volume of approximately 1 million tonnes was assumed (this value corresponds to the figure quoted in the literature), e.g. Stala-Szługaj K., *Import węgla kamiennego do Polski*. Przegląd Górniczy 2014, 5: 32–38. Export data: “Report on trade in hard coal” (G-09.1); data on imports: years 1994–2001 Biuletyn Górniczy GIPH 2006, 3–4 (129–130); years 2002–2020 (I–XI) compiled at IDA JSC Katowice Branch according to data of the Tax Administration Chamber in Warsaw.

Coal stocks (Fig. 7) in 2014 amounted to 8.2 million tonnes in 2012, 2013 and 2014 saw the highest coal stocks since the beginning of 1990. Coal prices, after a period of stabilisation between 2004 and 2007, in-

creased in 2008 by 34% compared to 2007 and in 2012 increased by 78.55 PLN/t compared to 2007. Afterwards they started to in 2013 fall and in 2014 reached 278.74 PLN/t (Fig. 9).

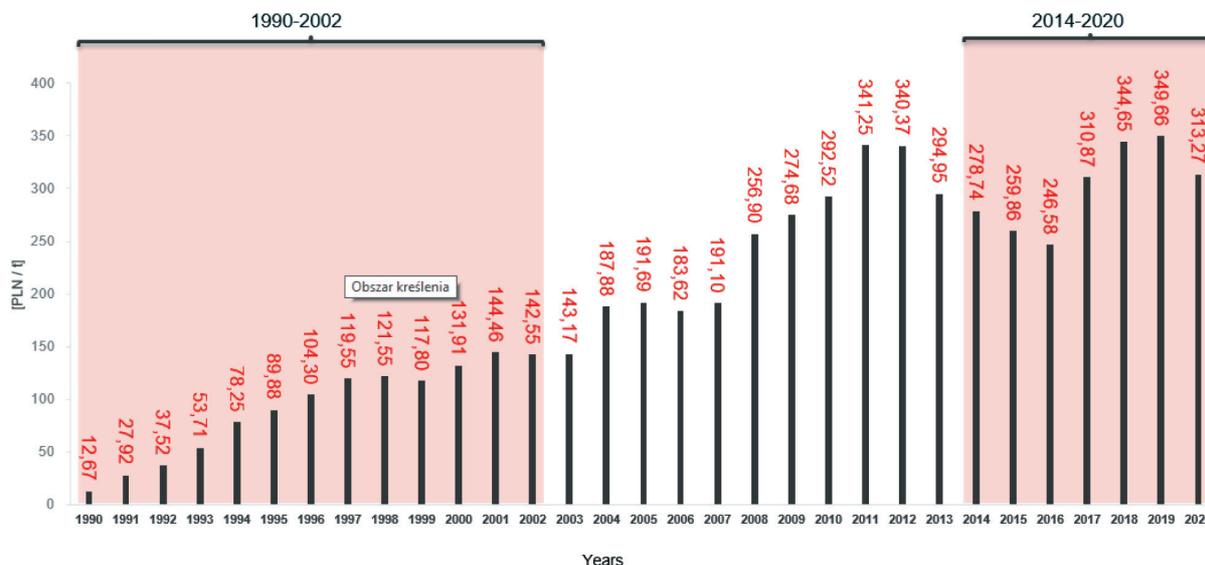


Fig. 9. Coal sale prices in 1990–2020 [1, 2]

According to the authors, a systematic increase in coal imports accompanied by a decrease in coal exports and an unprecedented growth in coal reserves indicates a systematic decrease in the competitiveness of Polish coal, both on the domestic market and on third markets. Investment expenditures (Fig. 6) have been steadily increasing until 2012, reaching PLN 3.2 billion in 2013. In 2004–2014, the coal mining industry spent PLN 10.493 billion on the purchase of mining equipment (Fig. 6). Liabilities until 2007 were decreasing with simultaneous decrease of receivables. The balance of liabilities to receivables (Fig. 10) in 2007 amounted to PLN 5.18 billion, starting from 2008 liabilities were increasing reaching in 2014 the amount of PLN 15.5 billion, in 2014 the balance of liabilities to receivables amounted to PLN 12.729 billion. The net financial result (Fig. 11) in 2003–2012 was positive, in 2013 it decreased to PLN (–)406.7 million and in 2014 to PLN (–)2.2 billion. Summarising the years 2003–2014, it should be stated that the reform undertaken in 2003 allowed the mining industry to operate on the hard coal market. The main feature of a market economy is constant adaptation to the situation on the market. After 2007, such actions were conspicuously absent in the mining industry. Despite the increase in liabilities (Fig. 9), the sudden collapse of the stock exchange and the related crisis in 2008 and 2009, saw insufficient action being taken to halt the accumulation of

liabilities and the loss of competitiveness. As a consequence, the rapid accumulation of liabilities and the deteriorating financial results led the mining industry to a crisis situation in which corrective measures became necessary and which were taken and implemented at the beginning of 2015.

4. THE PERIOD 2015–2019

In 2015, another recovery programme for the hard coal mining sector was implemented, at the same time starting work on the Programme for the Hard Coal Mining Sector in Poland, which was adopted by the Council of Ministers in January of 2018. The programme included, among others, the takeover by Spółka Restrukturyzacji Kopalń S.A. of mines which will be put into liquidation by the end of 2018. In total, 9 mines (Fig. 3) were put into liquidation, which represented 31.1% of active ones (2015 – 29 mines, 2018 – 20 mines), the number of longwalls (Fig. 2) decreased from 102 in 2015 to 75 in 2019, i.e. by 26.5%, the shift availability of active longwalls (Fig. 2) increased from 3.3 in 2015 to 3.5 in 2019, hard coal production (Fig. 4) decreased from 72.2 million tonnes in 2015 to 61.6 million tonnes in 2019 i.e. by 14.7%. From 2015 to 2016, we recorded a surplus of exports over imports (Fig. 8) (about 1.0 million tonnes per year), while from 2017 onwards we recorded

a sharp increase in imports, with 2018 and 2019 recording the highest coal imports to Poland since 1990 at 19.3 and 16.7 million tonnes respectively. The surplus of imports over exports in 2017; 2018 and 2019 was 7.1 million tonnes; 15.4 million tonnes and 13.0 million tonnes respectively. Hard coal stocks (Fig. 7) decreased from 5.8 million tonnes in 2015 to 1.7 million in 2017 after which they started to increase reaching a level above 5.2 million tonnes in 2019. Coal prices after decreasing in 2015, 2016 (2015 – 259.86 PLN/t, 2016 – 246.5 PLN/t respectively started to increase to reach 349.66 PLN/t in 2019 (Fig. 9). Liabilities (Fig. 10) initially decreased from the level of PLN 15.182 billion in 2015 to the level of PLN 11.854 billion and the balance of liabilities and receivables decreased from the level of PLN 12.752 billion in 2015 to PLN 8.029 billion in 2017. The next two years brought an increase in liabilities to the level of PLN 14.955 billion in 2019 and the balance of liabilities to receivables reached the level of PLN 12.814 billion. The net financial result (Fig. 11) improved until 2018 in which it amounted to PLN (+)918 million (in 2015 it amounted to PLN (–)4.5 billion), but in 2019 the net financial result of the mining industry was recorded at PLN (–)2.8 billion. According to the authors, after a short-lived improvement, starting from 2017 the mining industry has again lost its ability to compete in the market as evidenced by growing imports and coal stocks. Investment expenditures (Fig. 6), after a slight decrease in 2016 (by 73 million PLN compared to 2015), started to increase, reaching a level of 3.64 billion PLN in 2019, which has not been recorded since 1990. 3.5 billion PLN was allocated to the purchase of mining equip-

ment in 2015 to 2019 and the total expenditures in 2015 to 2019 amounted to 10.22 billion PLN.

5. YEAR 2020

In the period under discussion, 2020 deserves special attention and thus we have chosen to discuss it separately. In 2020, the number of mines and the number of longwalls did not change and employment decreased by only 4% despite the deteriorating situation in hard coal mining. In 2020, there was a decline in coal production by 11.7% compared to 2019 to 54.4 million tonnes, capital expenditures were reduced to PLN 2.867 billion while in 2019 they were PLN – 4.088 billion. There was an increase in coal stocks to 6.2 million tonnes while coal imports fell to 12.8 million tonnes from 16.7 million tonnes in 2019 and exports increased slightly to 4.4 million tonnes. Simultaneously further increase in liabilities has taken place, receivables decreased slightly and with that the balance of liabilities and receivables increased. The net financial result amounted to (–)6.465 billion PLN and fell to the lowest level in years.

2020 saw another crisis in the world, this time caused by the COVID-19 epidemic. The demand for coal fell sharply and in Poland, the accumulated stocks of this fuel additionally did not support the demand for coal, thus the investment effort made between 2015 and 2019 could not bring results in the form of lowering the cost of mined coal. In 2020, Poland signed and adopted the EU climate policy, which assumes that European Union countries will achieve neutrality in terms of CO₂ emissions by the year 2050.

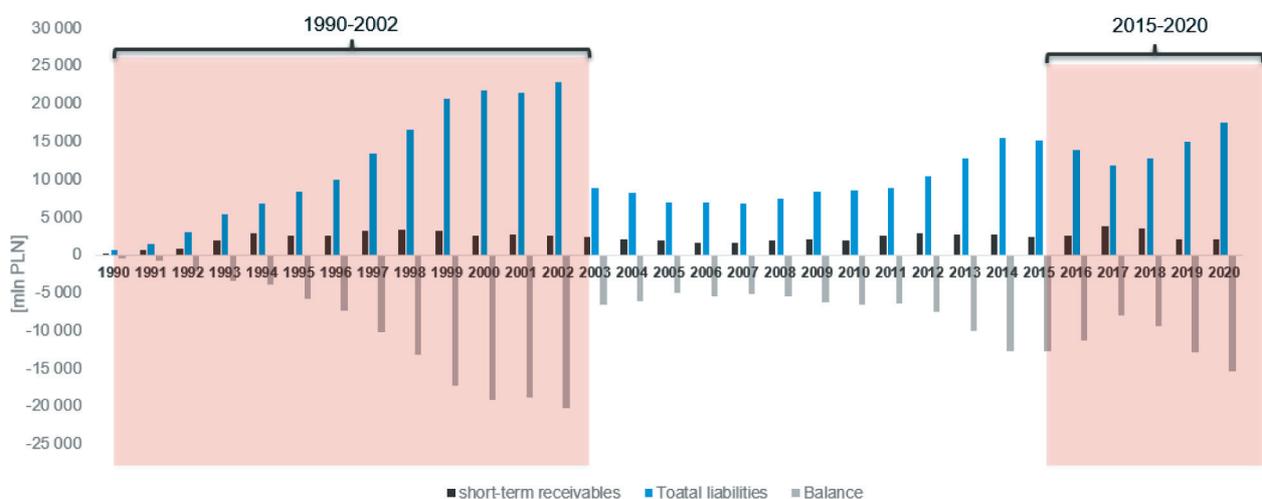


Fig. 10. Liabilities, receivables and the balance of liabilities and receivables in the years 1990–2020 [1, 2]

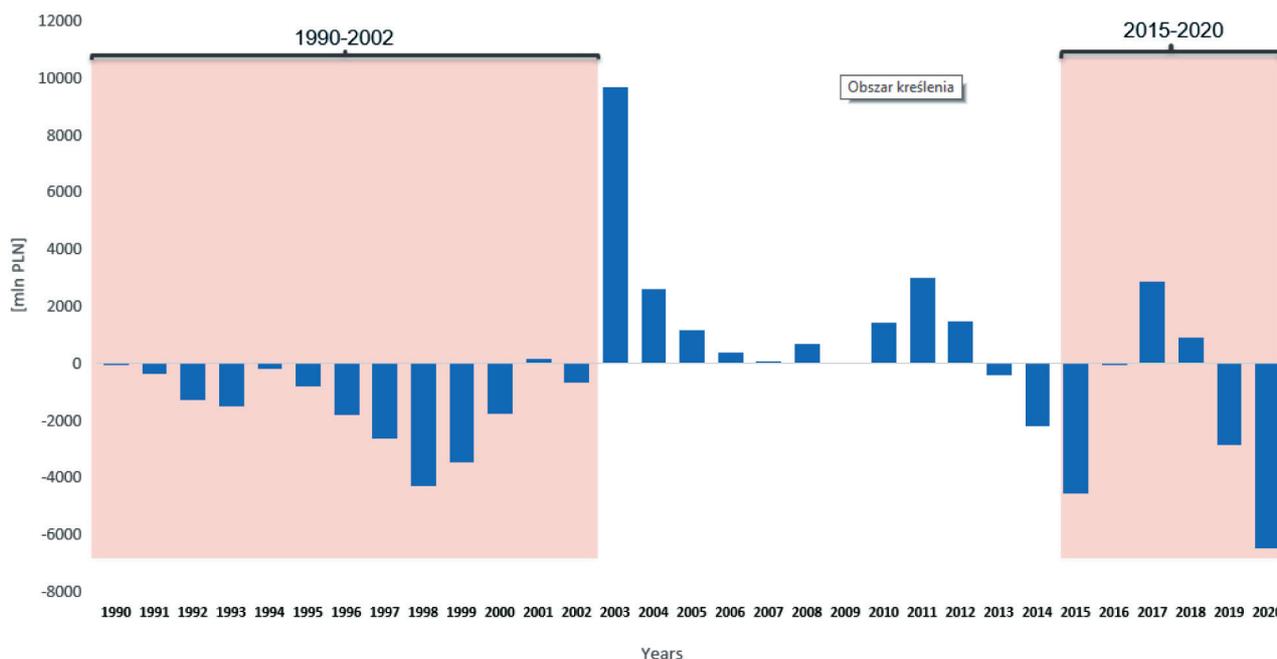


Fig. 11. Net financial result in 1990–2020 [1, 2]

In the second half of 2020, as a result of the dramatically deteriorating situation of the hard coal mining industry, the government started talks with trade unions operating in the hard coal mining sector regarding further developments of the mining industry. As a result of these talks, a plan was adopted for the closure of all mines by 2049, with the exception of Jastrzębska Spółka Węglowa S.A. and KWK Bogdan-ka S.A. A draft of the Polish Energy Policy until 2040 was presented at the end of 2020, which envisages the abandonment of coal-based energy (including hard coal and lignite) in the energy sector.

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