

EVOLUTION OF COAL EXPLOITATION IN VALEA JIULUI DURING THE REORGANIZATION PROGRAMS AFTER 1990

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ABSTRACT: *The hard coal exploitation is highly important for the Romanian energy department. In order to align to the E.U. policies and to achieve the national economic-social balance, the coal exploitation from the Valea Jiului mining area gets through a broad reorganization process. The reorganization in this domain regarded mainly the reduction in number of production capacities, together with the reduction in number of employees. Considering the quantity of the hard coal industrial reserves and the increasing consumption of electric energy in the world, the exploitation of this resource should be continued, trying to increase the economic efficiency of the activity.*

KEY WORDS: mining area, hard coal, mine, reorganization, production capacity

1. EUROPEAN COAL INDUSTRY AFTER 1990 [1], [2]

Despite the fact that in early 1990 the prices on oil and gas international markets encouraged the consumption of these basic energy resources, in Europe, due to a serious quantity of coal resources and to the availability of the exploitation, transport and energy production infrastructure for this resource, made the coal based thermal-energy generation to continue and cover about 30% of the electrical energy consumption need.

The national coal exploitation quantity, used both for the production of electrical energy and for steel, has decreased after 1990 favoring the imports, mainly influenced by:

- the evolution of prices on the world market for energy and coking coal, prices lower than the extraction costs for the Romanian coal;
- limited quantity of coking coal resources;
- worse geo-mining conditions, together with the increase of exploitation depths as the easy access deposits were depleted, for most European mines, which lead to a worse ratio between costs and benefits.

Therefore, the reorganization of the European coal department was emphasized after 1990, some countries giving up completely the coal exploitation.

For the reorganization of the European coal department, there were used a series of principles stated since 2003 at the 19th World Mining Congress in New Delhi. Basically, these principles refer to:

- continuous development of the mining industry performances production wise, of the efficiency, of mining safety and of environmental protection;

lowering the industrial production of steel and consequently of the electricity production in thermal

- significant increase of the investments for deposit exploitation, especially for the lower depth ones;
- continuous decrease of the mining impact industry on the environment;
- sustainable development will be the base of every major decision in mining;
- the development of the mining industry based on the newest existing technologies;
- the introduction of future technologies, mainly non-conventional technologies, with the purpose of lowering the production costs;
- continuous assignation of resources for the development and support for mining research and education;
- mining reorganization strategies will be developed and applied to have minor negative effects on the communities from the mining areas.

2. ROMANIAN MINING INDUSTRY AFTER 1990 [1], [2]

The development strategy of the mining industry before 1989 was based on self-support helping the Romanian economy with mineral resources, in order to lower imports.

The result was the development of the mining sector more than the exploitable solid mineral resource potential would allow, using for this purpose directly 350,000 people and indirectly another 700,000.

After 1989 it was needed the government support for the situation created.

The coal industry in Romania recorded a small increase in early '90s, followed by a strong decrease of the production in the second part of the decade due to plants, but also due to the losses recorded especially for underground exploitation.

Until 1998 the Romanian authorities couldn't launch a reorganization plan for the coal industry due to the fierce opposition of the unions but also because the downward trend of the production and deposits of natural gas and oil didn't allow a quick substitution (on medium term) of the coal in the electric energy production, despite its low efficiency and high environmental pollution. Therefore, the significant decrease of the coal production from the late '90s is less the result of the implementation of a rationalization and reorganization strategy which should have been applied immediately after 1989, but more the effect of the market, respectively, the evolution of the relation demand / offer.

3. THE VALEA JIULUI MINING REORGANIZATION AFTER 1990 [3], [4], [5], [6], [7], [8]

Mining reforms in Romania included the mining industry from Valea Jiului and the reorganization was done at management, technical, economic-financial and human resource levels.

3.1. Management reorganization

Since 1990 Valea Jiului Mining Complex was transformed into The Romanian Hard Coal Autonomous Administration.

During 1991-1996, a part of the units, which held basic or complementary activities for the Hard Coal Autonomous Administration, were detached and transformed into distinct companies. Also the activity of two underground exploitations, three open pits and one coal processing plant stopped.

In 1998 it was founded The Hard Coal National Company from the reorganization of the Hard Coal Autonomous Administration. Also two mining exploitations stopped the activity while 23 mining perimeters (mines) and two coal processing plants were included to a preservation program.

Two more mining exploitations stopped their activity in 1999, while during 2000-2006 the activity was stopped at two processing plants and three other mining exploitations. Also 22 mining perimeters (mines) were included to a preservation program.

A new reorganization took place in 2012, the Hard Coal National Company being divided into two companies:

- Hard Coal National Society, which includes 4 mining exploitations, one processing plant and one mining rescue station;
- Valea Jiului Mine Closure Society, which includes 3 mining exploitations, considered unsustainable, part of a closure plan with deadline on 2018.

As part of a merging by absorption process in 2013, the Hard Coal National Society became the Mining Division branch of the Hunedoara Energy Complex Society.

3.2. Human resource reorganization

In the beginning of 1989, the mining industry from Valea Jiului contained about 60,000 people.

As an effect of the management reorganization of the subunits, starting with 1990 the number of people working in the mining industry has decreased continuously (figure 2).

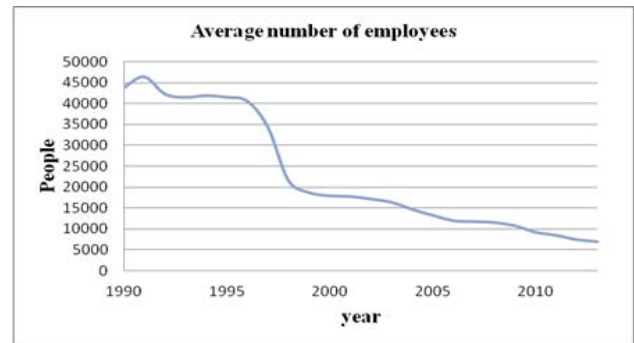


Fig. 2. The average number of employees

3.3. Economic-financial reorganization

The economic-financial reorganization aimed to:

- reduce the costs for auxiliary services, through market auctions;
- reduce the stocks of material by capitalizing the ones with slow circulation;
- reduce the expenses for 1000 USD production (fig. 3) and eliminate the nonproductive expenses;

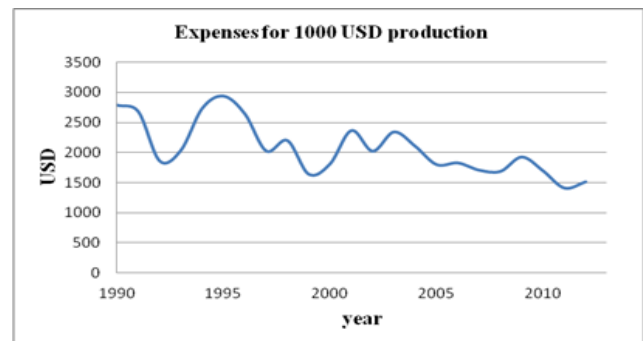


Fig. 3. Evolution of expenses for 1000 USD production

- reduce the government allocations for investments and using only the own budget for investments (fig. 4);

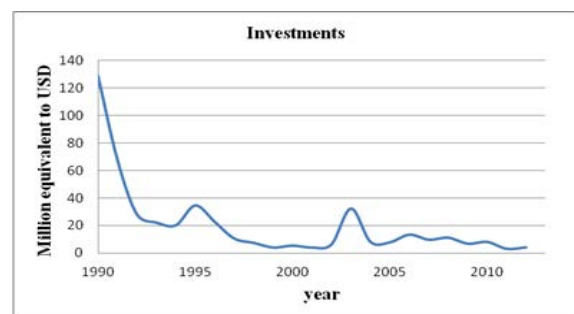


Fig. 4. Evolution of the investments value after 1989

- eliminate the subsidies after 2011 (fig.5);

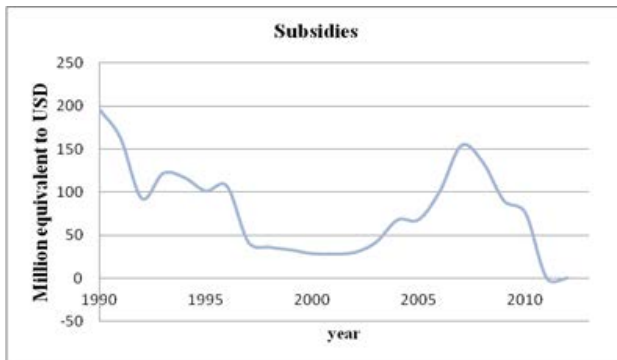


Fig. 5. Evolution of subsidies value after 1989

- increase the incomes by concentrating on obtaining end product goods;
- reduce the exploitation losses;
- pay the current debts.

3.4. Technical reorganization

Since the investment funds in new utilities for mechanized technologies were cut, while the classic methods used were expensive and with low efficiency, new technical solutions for coal exploitation were needed.

Therefore, during 1994-1995 there were developed two new exploitation methods for hard coal in Valea Jiului, respectively: coal and rocks subsidence works (SCRI) and undermined bench works.

By using these methods the work efficiency increased and the production costs were reduced.

In 1997 the Valea de Brazi Mining Exploitation was technically restructured, a mechanized work complex being bought and introduced underground.

The exploitation method with coal and rocks subsidence works lead to the occurrence of endogenous fire, hard to control, being eliminated since 2004.

Through the integrated project ITOCHU-KOPEX, started in 2000 and finished in 2004, there were technically restructured two mining exploitations and one processing plant.

In 2006 a mechanized work complex was bought and used for Lupeni Mining Exploitation, while for the Central Mining Rescue Station there was bought a mobile installation for nitrogen production, used by all mining exploitations from Valea Jiului.

Also, other modernization and technical restructuration processes took place for the auxiliary services of the mining works.

The employee redundancies during 1997-1998, imposed the restriction of the exploitation activities and the start of closure and preservation works of the halted mines.

In 1989, the coal extraction production had a descending evolution (fig. 6).

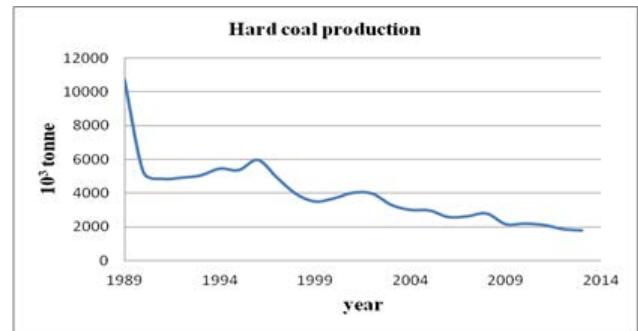


Fig. 6. Evolution of hard coal production after 1989

Work efficiency had an ascending evolution starting with 1990 due to the reorganization processes (fig. 7).

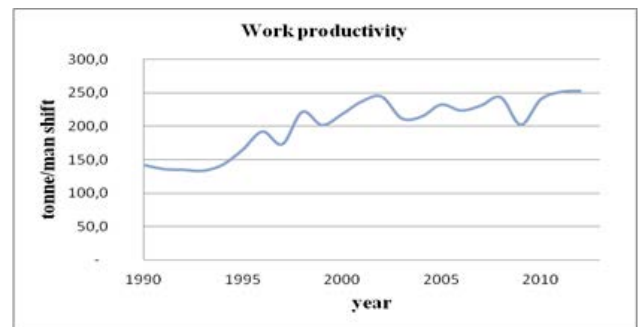


Fig. 7. Work efficiency evolution since 1990

For comparison, the types of production capacities in 1990 and 2013, are presented in figures 8 and 9.

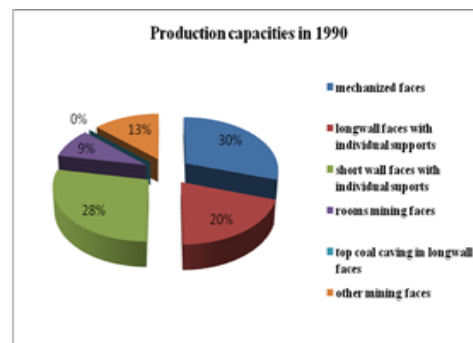


Fig. 8. Production capacities shares in 1990

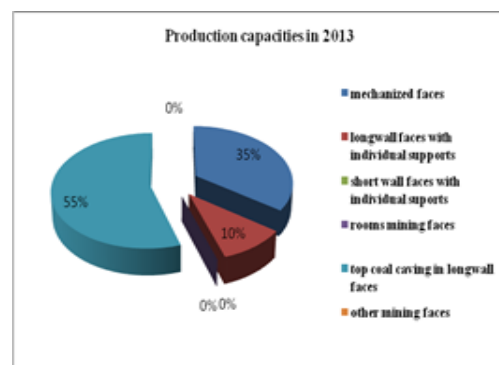


Fig. 9. Production capacities shares in 2013

4. CONCLUSIONS

The national presence and potential for this primary energy source (hard coal), gives Romania the opportunity of becoming an important exporter of electric energy inside EU, for the following period, due to the fact that compared with other countries, the energy mix is relatively balanced, while the dependence of primary energy producer imports is relatively low.

Even if from time to time there were developed national strategies regarding the electric energy production, even if coal, in general, and hard coal, in particular, was recognized as important energy resource, none of them were accompanied by a strategy for the retaining and raising the efficiency of the coal extraction department. Therefore, the problems regarding the department efficiency, existing before 1990 worsened especially after 2007 when Romania became EU full member.

Periodically, for keeping the department at reasonable economic parameters, there were taken reorganization and restructuring measures, targeting mainly the closure of the mines which were the least efficient ones at that time and employee redundancies.

We notice that the mines were closed without any medium and long term analysis which to underline its viability while there could be implemented programs to raise the efficiency of the exploitation.

Also the employee redundancies were done without any strategy for the people within the departments.

Lowering the activity and the number of employees was not accompanied by any of these activity reorganization measures of mechanizing the production processes, which could have increased the economic efficiency, as it results from the presented data. Even if the exploitation method with coal undermined bench started to be used at large scale in the Valea Jiului mines, which represented a step leading to significant increases in work efficiency and to lower costs, the evolution of the indicators proves their sensitivity to the exploitation mechanization degree.

For the two categories of methods (undermined bench front works and coal and rocks subsidence works) we notice a significant increase of the production, but this was done with the unjustified increase of the undermined coal bench thickness which lead to deposit losses, up to 50% in some cases, affecting the deposit consumption, the insurance degree and creating additional risks for nearby field exploitation works.

The future exploitation of hard coal deposits has some advantages:

- big industrial reserves, which can fuel the thermal plants on long term;
- 150 years of tradition in hard coal exploitation and the existence of highly qualified staff;
- relatively low transportation distance from the mining exploitation to the main consumers;
- the existence of a highly developed industrial infrastructure, both underground and on surface.

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