

## **ORGANIZATION OF MANAGEMENT ACCOUNTING AND COST CALCULATION OF MINING IN JIU VALLEY**

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**ABSTRACT:** *The scientific approach taken, due to the fact that a nationally more acute problem arises regarding mining restructuring, namely the closure of uneconomic mines, in this paper I want to report my finding on how management accounting is organized and which is the costing method currently applied by the seven mines in the Jiu Valley, which are currently functional, as well as to identify their limitations and advantages for improving them and identifying financial and economic solutions, demonstrating that in fact these are viable economic entities.*

**KEY WORDS:** *management accounting; costing; coal mining industry; mining; viable*

**JEL CLASIFICATION:** *M41*

### **1. INTRODUCTION**

As a result of complex studies carried out by different specialists, both in the country and in other countries on natural resources - coal, it was concluded that this mineral must be exploited and used increasingly less by the world's population and, implicitly by Romania, on the grounds of large quantities of carbon monoxide emanations and sustainable development. For example, as a consequence, France, located in Western Europe, which had an advanced technology in coal mining had dropped out of operation since 1960. On the other hand, however, the energy needs of the entire population is growing and existing coal reserves in the world is estimated to be sufficient for several hundred years from now, some countries being interested in buying this resource, and others in selling. According to forecasting studies, developed worldwide by the year 2030, all world markets expected a slightly upward trend in coal prices, with substantial increases in other energy resources (oil and natural gas). As oil

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and gas reserves are decreasing, the role of indigenous coal and, in particular, of lignite, should increase in the national energy balance. Our country has an estimated coal reserve of 755 million tons, of which exploitable in leased premises 105 million tones, enough for at least 35 years (data that can be seen in Table nr.1.1.). Therefore, considering our country's population situation and particularly of the approximately 150,000 people in the Jiu Valley - an area with a strong monoindustrial character being developed around the seven urban still active mines, I find it appropriate that these mines to be refurbished and to become profitable in order not to undergo the process of closing, as they were for example, the mines: EM Câmpu lui Neag, EM Valea de Brazi, EM Bărbăteni, EM Aninoasa, although they had untapped reserves of coal and even more so, the mine EM Valea de Brazi has undergone the closure and ecological process, after major investments have been made to itself and within its administrative headquarters which have been completely modernized in the early 2000s. I believe in Jiu Valley mining should continue in terms of sustainable development, since the vast majority of the population in the Jiu Valley is directly dependent on those working in this sector and not least because the country's energy need is growing.

**Table 1. Evolution of national primary energy resources**

Primary Energy Carrier Resources	MU	Reserves						Estimated Annual Production Mil tones	Provided Estimated Period			
		Reserves		Leased Exploitable		In New Perimeters			Geologic Reserves	Leased Exploitable Reserves	In New Perimeters	
			Mil tep		Mil tep		Mil tep		Year h	Year h	Year h	
1	2	3	4	5	6	7	8	9	10=3/7	11=3/7	12=3/7	
Charcoal												
- coal	Mil tones	755	422	105	38,8	1045	133	3,3	229	32		
- lignite		1490	276	445	82,4			32	47	14	33	
Petroleum	mil t	74	72	-	-	-	-	5,2	14	-	-	
Natural Gas	mil t	185	159	-	-	-	-	12,5	15	-	-	

Source: Romanian Agency for Industrial Development of Mining Areas (ARDDZI)

The development of coal industry in the future is a necessity to be supported by increasing awareness of the reserves, by increasing existing production capacity and creating new ones, and especially by improving operational technologies. However, the Jiu Valley is an area with serious social problems, with the most dramatic forms of restructuring. A series of ordinances have been issued, such as Emergency Ordinance no. 30/16.07.1997 on autonomous reorganization, regarding the Program of Restructuring the Autonomous Sector of Hard Coal in Romania (RAH), which following negotiations in the tripartite commission government-union-employer in the coal sector was approved for implementation by Ministry of Industry and Trade no. 1602/21.08.1997. Later were issued other ordinances OG 22/1997 and OG 60/1997 according to which the flocks of the Autonomous Sector of Hard Coal Petrosani (RAH) fell by 18,107 people, and continuing decline in 2010 with a total of 1600 miners, personnel downsizing that can be classified as "severe" and with consequences on multiple plans. The mining problem of Jiu Valley was analyzed over time by various specialists, such as Ms. Ph.D. Professor *Mariana Man* in "*Management Accounting and Costing Calculation*", Scrisul Romanesc Publishing House, Craiova,

1997, Mircea Baron, “*Social Movements in the Romanian Mining in the First Half of the Twentieth Century*”, the article being presented and published in the *Annual Session of Scientific Communications of the Museum of Dacian and Roman Civilization in Deva, 26 to 28 June 2008, etc.* As a result of those presented, by this scientific approach I intend to relief that the Jiu Valley mining should not be closed, but should be part of an efficient management, to be based on sound management accounting and cost calculation, that are important information provider for decision-makers from the economic entities in the coal mining industry.

## **2. RESEARCH METHODOLOGY**

In my scientific research I approached methods of quantitative and qualitative type, meaning that in that study we conducted the analysis of documents from five of the seven existing mines, namely the EM Uricani, EM Lupeni, EM Vulcan, EM Paroşeni, EM Vulcan and EM Petrila, excluding EM Livezeni and E. M. Lonea. The qualitative methods used consisted of interviews and unstructured observation, after which we found that the information received on the costing method currently applied are fair and valid.

## **3. ORGANIZATION OF MANAGEMENT ACCOUNTING AND COST CALCULATION OF MINING IN JIU VALLEY**

Given that these economic entities of the National Hard Coal Company SA Petrosani extract a single product, coal, which is then subjected to preparation, the current system of accounting and costing has important objectives, namely to determine the actual cost of achieved production, while the organization of management accounting in these entities is likely centralized.

In economic entities of the coal mining industry we encounter two types of cost: budget or pre-calculated unit cost and the effective or postcalculated cost of coal production.

Calculation relationships can be expressed as follows:

$$cui = \frac{\sum_{j=1}^n Chpj}{Q_i} \quad (1)$$

where:

cui, the unit cost of coal;

Chp, production costs;

j, articles of calculation;

Q, the quantity of coal produced in the reporting period

Total production costs are broken down by types of expenditure and each output is then reported to the amount of coal produced in that reporting period, so that we can calculate the unit cost, by the relation:

$$cu = \frac{\sum_{j=1}^n Ch}{Q} = \frac{ch.matp + ch.m.vie + ch.utilitati + ch.salarii, asig, prot.soc.}{Q} \quad (2)$$

Substituting in the relations (1) and (2) of subsections 3.3. Costing method used in the coal mining industry economic entities, follows:

- Pre-calculated unit cost  $cui = \frac{9142 \text{ miilei}}{14300} = 639.30 \text{ lei / Gcal}$
- Respectively, the actual unit cost due to postcalculation  $cui = \frac{7959,07 \text{ miilei}}{10800} = 736.95 \text{ lei / Gcal}$

From calculations, it results a negative difference, meaning that production was obtained with an effective unit cost (post-calculate) over the estimated (pre-calculated) one, of 97.65 lei / Gcal.

**Table 2. The cost of coal product on primary elements of expenditure on August 31, 2010**

No.	Specification	Programmed		Accomplished	
		Thousands lei	Lei/t	Thousands lei	Lei/t
1	Physical production tons	14300	-	10800	-
2	Production of manufactured goods	3682	-	1262,68	-
3	<b>Total cost (row 9 + row 13), of which:</b>	<b>9142</b>	<b>639,3</b>	<b>7959,07</b>	<b>736,95</b>
4	Raw materials and materials for production, of which:	200	13,99	143,64	13,30
	Fuel	0,00	0,00	8,85	0,82
5	Energy and water out of production, of which:	675	47,20	650,69	60,25
	water	0,00	0,00	3,15	0,29
6	Depreciation	400	27,97	425,25	39,38
7	Works and services performed by third parties for manufacturing	40	2,80	907,97	84,07
8	Other materials for production costs	0,00	0,00	53,92	4,99
9	<b>Total expenditure on materials rd.4 rd.8</b>	<b>1315</b>	<b>91,96</b>	<b>2193,47</b>	<b>203,10</b>
10	Payroll staff, production	3411	238,53	2837,84	262,76
11	Insurance and social protection for production staff	1892	132,31	1073,32	99,38
12	Other living expenses for production work	2524	176,50	1854,43	171,71
13	<b>Total Expenditure on work life Rd. 10 rd. 12</b>	<b>7827</b>	<b>547,34</b>	<b>5765,59</b>	<b>533,85</b>

All these data have analysis value in respect of the management and the financial and accounting elements of mining, as a whole. Those to whom these are intended are very few, and the fact that the reports are made at the end of the reporting

period gives them a historical value and practically a character of "unnecessary" although they have a high degree of accounting precision.

**Table 3. Coal production cost per calculation item on August 31, 2010**

No.	Specification	Programmed		Accomplished	
		Thousands lei	Lei/t	Thousands lei	Lei/t
A	Physical production tons	14300	-	10800	-
B	Production of goods	3682	-	1262,68	-
1	Raw materials and auxiliary materials	180	12,59	111,03	10,28
2	Fuel	-	-	2,01	0,19
3	Energy	607	42,45	164,85	15,26
4	Water	-	-	3,15	0,29
5	Depreciation	240	16,78	60,86	5,64
6	Gross Wages	2558	178,88	2199,76	203,68
7	Insurance and social protection	979	68,46	838,04	77,60
8	Other direct costs	2415	168,88	1441,09	133,43
9	<b>Total Direct Costs</b>	<b>6979</b>	<b>488,04</b>	<b>4820,79</b>	<b>446,37</b>
10	Expenses for equipment maintenance and operation	125	8,74	58,16	5,39
11	General expenses of department	550	38,46	699,03	64,73
12	<b>Total cost of department</b>	<b>7654</b>	<b>535,24</b>	<b>5577,98</b>	<b>516,48</b>
13	General expenses of management	1488	104,06	2381,08	220,47
14	<b>Factory cost</b>	<b>9142</b>	<b>639,30</b>	<b>7959,07</b>	<b>736,95</b>
15	Retail Expenses	-	-	-	-
16	<b>Full cost</b>	<b>9142</b>	<b>639,3</b>	<b>7959,07</b>	<b>736,95</b>

Although at first glance, I inclined to believe that the single method of calculation used by these mining economic entities is the global method, because it is "manufactured" a single product - the coal, however, if we consider the phases of coal mining I actually found that in addition to this global method there are used two other methods of costing calculation that are used to calculate the actual cost of obtained coal production, meaning the phase method and the order method used in the auxiliary departments.

In so doing my research I found that, in fact, the Jiu Valley mining, for cost calculation it applies the method of comparisons of output and scheduled/ planned production and at the end of the month/ reporting period, or at some mines in the following month, the necessary corrections are made. If we consider the factors and principles influencing the organization of management accounting in the Jiu Valley mines I have found that also the method of phases calculation is used, whereas the costs are tracked on the production phases, namely: work preparation, stopes, backfilling, underground transport, underground maintenance, ventilation, and gassing etc., and s.o.

In Coroiesti Coal Processing we meet several technological steps, such as sorting, flotation, filtration, tailings disposal and water treatment. To be highlighted in managerial accounting, all of these technological stages are symbolized in accounting

and the symbols assigned to them are required to sign all documents concerning consumption and obtained production. Cost per product, according to this method of calculation "on stage" is determined at the end of each month, noting that the mining economic entities do not have semi-products and production in progress.

Managerial Accounting, at the level of mining currently involves recording, processing and analysis of costs. Bookkeeping is performed using accounts grader 9th of General Chart of Accounts, respectively class of management accounts, where accounts of group 92 "Calculation Accounts" develops on analytical accounts specific for the mining activity. Each economic entity within the National Coal Company SA Petrosani organize their own management accounting, with the synthetic accounts: 921 "Expenditure on the Core Activities for Mining Activities (Direct Costs)", 922 "Expenditure on Operating Activities for Ancillary Activities", 923 "Common Expenses for Operating Activities" and 924 "General Expenditure for Operating Activities" as well as their analytics 9211 "Preparatory Work", 9212 "Cutting", 9213 "Backfilling", 9214 "Underground Transport", 9215 "Underground Maintenance", 9216 "Aeration and Degassing" , 9217 "Other Works Underground" that thrive to under-analytic, depending on the complexity phase covered are symbolized as: 92121 "Room Stopes ", 92122 "Frontal Stopes", 921221 "Frontal Stopes - Thick Layer", 921222 "Front Cutting - Thin Layers", 921224 "Front Cutting Stopes with Mechanized Complex", 921225 "Front Cutting with Undermined Bench", noting that within the company, all seven branches have adopted the same symbolization and designation of accounts.

In the scientific approach taken, we found that only in the productive sectors can be identified indirect expenditure, but not regarding the real product, the coal. This expenditure is highlighted in each production sector, on calculation items, groups and types, and is accounted for using the account 923 "Common/Indirect Expenses for Operating Activities". Some common expenses of the production sectors are directly related to the extraction of coal, forming a separate calculation item "Expenditures for Maintenance and Operation of Equipment". These expenses are recorded in account 9231, "Expenditures of Maintenance and Operation of Surface Equipment", which in turn develops into the sub-analytic kind of expenses as follows: 92311 "Equipment Maintenance and Operation Expenditures Incurred by Own Forces", 92312 "Expenditures for Maintenance and Operation of Equipment by Third Parties", 92313 "Expenditure for Equipment and Vehicles Overhaul by Own Means", 92314 "Expenditure for Equipment and Vehicles Overhaul by Third Parties", 92315 "Depreciation of Equipment and Vehicles", 92316 " Depreciation, Repairs and Maintenance of SDV's and Inventory Items", 92317 "Energy, Fuel and Other Costs for Technical and Motility Purposes", etc.

Management and administration costs incurred by the production sector are also indirect costs, although not expressly made within the process of coal extraction, which are contained in two separate calculation items highlighted in the analytical accounts, as follows: 9232 "General Expenditure of the Industry Area", which grows as sub-analytic on types of expenses, as follows: 92321 "Salaries of TESA Management and Service Personnel, Health Insurance Contribution and Contribution to Unemployment Funds (TESA, sectors); 92322 "Depreciation of Buildings and Other

Fixed Assets of the Surface Sector" 92323 "Expenses for Testing, Experimentation Standards" (lab), 92324 "Expenditure on Labor Protection for Surface Activity", 92325 "Expenditure on Environmental Protection" and 9233 "Other Common Expenses of the Section", which develops analytical on kinds of expenses, as follows: 92331 "Expenditures on Telephone Exchange on Surface (Wages of Telephonists), Geo-Topographic Surface, PDS-Service Area, MEAT Office, Radio-Amplification Station, Dispatchers, Printed Materials (not stored), Canteen Marks etc.; 92332 "Additional Tax Expense According to Governmental Ordinance OG 13/1994"; 92333 "Transport of Materials by Third Parties", 92334 "Transport of People to and from Work Performed by Third Parties for Surface Staff", 92335 "Transport of People to and from Work Performed by Own Means for Surface Staff (costs with own buses)".

In relation to the nature or type of indirect production costs, these documents are recorded monthly, usually at the end, for example: depreciation of fixed assets, inventory items, CAS, salary costs, materials, but financial expenses are recorded in documents every day. During my research I found that in the Jiu Valley mining it is used the term "living labor costs" which in fact is an obsolete term, being used until the late '90s, when this term was replaced with another, for example: according to the authors *Oprea Calin and Caludiu Florin Calin* in the work "*Managerial Accounting*", published in 2007, this term is called "Wage Costs"; according to the authors *Dorina Budugan, Iuliana Georgescu, Ioan Berheci, Leontina Bețianu* in the paper entitled "*Management Accounting*", published in 2007, CECCAR Publishing House, Bucharest, the term has been replaced with the term "cost of staffs' salaries"; according to the authors *Oprea Calin, Mariana Man and Monica-Viorica Nedelcu*, in the work "*Managerial Accounting*", published in 2008, Didactic and Pedagogical Publishing House, RA, the term has been replaced with the term "salary costs", etc.

For the economic entities in the coal mining industry, the general expenditure are incurred by the management and administration of mining activities in their entirety, not being identified neither on sectors, nor on products. These costs are given in the accounts of these economic entities with account 924 "General Administration Expenses", which grow to sub-analytical, grouped into four groups in relation to their role and purpose, and the kinds of expenses, as follows: 9241 "General Interest Expenses", 9242 "General Expenses Regarding Gratuities, Social Activities etc.", 9243 "Domestic Administrative Expenses" and 9244 "Maintenance and Management Costs". Regarding the general interest expenses and administrative and housekeeping expenses one can say that they are generally similar to indirect production costs, additional costs arising as those of general interest: 92415 "Expenditure for Mechanized and Automated Data Processing (Computer )", 92417 "Land Taxes", while for the Administrative and Household Expenses there appear additionally: Type 92431 "Office Supplies", 92432 "Books, Magazines, Publications and Subscriptions", 92433 "Telephone, Telegraph, Radio, Post Expenses", 92435 "Travels, Seconds and Transfers". In the category of general expenses regarding gratuities are recorded as follows: 924201 "Coal Allowances for Surface Staff", 924202 "Rents for Surface Staff", 924203 "Differences in Electricity Price for the Surface Staff", 924204 "Expenditures on Heating Fees for Surface Staff", 924205 "Schooling of staff (school expenses, scholarships, lecturers, salary of secretary, courses, etc.), 924207

"Expenditures on Medical Dispensaries", etc. The analytical accounting of the general administration expenses is taken into groups and types of expenditure through collection situations of indirect costs, such as calculus and repartition situations, as well as those for supplies, wear of inventory items, wages, health insurance (CAS) etc.

In the economic entities in the coal mining industry another very important type of expenses is also that incurred by the business divisions, having the role to help with the basic production – coal extraction, expenses which are given in the management accounts with account 922 "Expenditure on Ancillary Activities for Mining Operations ", which grows on sub-analytical, as follows: 9221 "Expenditures on Mechanical Workshop", 9222 "Expenditures on Electrical Workshop ", 9223 "Expenditures on Carpentry Workshop", 9224 "Expenditures on Deposits", 9225 "Expenditures on Transportation of Materials Performed by Own Means", 9226 "Expenditures on Other Ancillary Activities", 9228 "Expenses of the Wagon Repairing Workshop".

For the auxiliary departments, the analytical accounting and costing calculation is organized according to the method of cost calculation "on order", getting analytical for each section/department, for each order in which is recorded during the month the direct expenditure on calculation items, and at the end of each months, also overheads shares. Indirect costs of production of each section is reflected during the month in separate analytics, within the same synthetic cost, the breakdown by groups and items of expenditure, similarly to the account of indirect production costs of production sectors. At the end of the month, these indirect costs are attributed to orders from the section, according to a conventional key distribution. In terms of costs collection from ancillary departments this is done through the preparation of primary and summary documents. Basically, the whole system of organizing the management accounting and cost calculation in the coal mining industry of Jiu Valley involves substantive steps, such as:

1. Collection, aggregation and correlation of financial / general accounting expenses with those of management accounting;
2. Preparation of summary statements on each calculation account, i.e.: 921 " Expenditure on the Core Activities for Mining Activities (Direct Costs)", 922 "Expenditure on Ancillary Activities for Mining Operations", 923 "Common Expenses for Operating Activities", 924 "General Expenditures on Mining Operations";
3. Calculating the production cost on primary elements of expenditure and calculation items.

In the investigated mines I noticed that the two accounts, financial management accounts blend, due to the fact that all expenses recorded according to their economic nature in the financial accounts are taken up and held by their use by management accounting. The undertaken study allowed me to see that over a period of management (current calendar month), there are various operations, from registration of costs and their accounting, to centralization of all costs, depending on their nature. For example, the consumption of materials are outlined in a summary document "Diary of material consumption and other materials used in August 2010", in which each type of used material appears in the Analytics account 301 "Consumables", written on the

vertical in the document, as well as the analytics of the calculation accounts of group 92, horizontal. After these operations, at the end of the calendar month shall be made up the accounting notes, the balance sheet and profit and loss account.

In the economic entities under investigation in the National Hard Coal Company SA Petrosani the stream of specific records of management accounting is identical for each of the seven existing mining currently consisting of:

1. Registration of expenditures on materials consumption, expenditures on wages according to the summary of wages, expenditure on social security and social protection, the depreciation of fixed assets;
2. Distribution of costs on ancillary activities, of indirect production costs and general administration costs of mining regarding the basic costs;
3. Record of the produced coal production, at the predetermined price (pre-calculated);
4. Reimbursement of the actually cost of the achieved coal production;
5. Registration of the price differences (favourable or unfavourable) for the production of coal;
6. Closing the account 931 "Cost of Achieved Production".

For each calculation account of group 92 it is drawn a summary statement based on the values in the analytics of the economic entity's expense accounts, those being actually the database needed to work out the situations regarding the cost of coal production, both on primary elements of expenditure, and on calculation items, statements to be submitted as annexes to the accounts report to be submitted to CNH SA Petrosani.

*The situation of product cost relating to the primary elements of expenses* in the current month, is used to determine both total mining cost and value of each item of expenditure involved in the overall cost structure, i.e. the weight that the material expenses and the expenditures on living labour have in the cost structure and the situation of the costs on calculation items is used to determine the amount by which each calculation item falls in the cost structure, that in determining the level of direct costs, the production costs, the general administrative expenses, the complete cost and the unit cost (Lei / tone of coal).

#### **4. ADVANTAGES AND LIMITATIONS OF THE CURRENT METHOD OF COSTS CALCULATION AT MINES IN JIU VALLEY**

*The advantage* of organizing the management and cost calculation accounting in a centralized shape, is that it provides to the economic entity's management at any time, an overview of all production costs and a more detailed accounting of these expenses would result in unduly increasing administrative and wasteful expenditure. However there is the generally accepted view that traditional costing methods have remained valid over time because of maintaining of their objective basis (technical structures, technologies, processes of production organization) which gave and assigned to them various basic methods.

The brief analysis of the calculation methods of costing used in the Jiu Valley mining revealed that the **main disadvantage** of their implementation is the lack of efficiency and forecasting.

This leads to the information about the process of production not to reach in time the management in order for the latter to take appropriate decisions, on the one hand, and on the other hand, not to have a prospect of future performance of the production process, and therefore, accounting not to fulfil its role as management accounting.

Thus, it is has, it is imperative to improve costing methods, as a consequence of the fact that under current conditions, when the sues that claim the rulers of the country on business management are increasingly numerous and complex, the efficiency of the production process depends, among other things, on the efficiency with which information reaches the management, on the skill with which the management capitalizes information in taking decisions, and on the operational controlling of the production process, from the perspective of the objectives set out in budgets. The efficient organization of the economic activity lays down the improvement of its management methods, which requires a reconsideration of methods of management accounting and costing, which must be capable of providing appropriate information according to the requirements of effective management of production, in terms of the economy market. An effective leadership is unthinkable without an appropriate information system in accordance with the prerequisite of modern production, enabling the adoption of decisions and operational measures, thoroughly grounded and timely. The main purpose of improving the method of cost calculation in the Jiu Valley mining is to make it more operational and efficient in providing the necessary information to the management for making decisions.

The current costing calculation method practiced at the Jiu Valley mines, meaning the general method combined with the orders and the phase method by which a historical cost is determined, a posteriori, used for the settlement and post factual justification of the costs of production, does not supply entirely the information needs of the management/leaders.

This derives from the fact that classical methods do not allow the operational determination of deviation of the incurred expenses from the preset (budgeted) ones in order to be able to intervene "on the fly" in correcting abnormalities that cause disturbances in the process of production and to bring it to the normal. Through it, there is carried out only a post operative determination of the deviation of incurred from the preset expenditure during the accounting settlement that is made at the end of the reporting period, when the anomalies that have caused disturbances either have gathered pace, or have meanwhile been rectified and therefore the time of fault is exceeded and the conclusions drawn on the analysis of deviations, many times, no longer find the need and opportunity.

Therefore, management accounting of organization in order to increase performance in the Jiu Valley mining activity regarding the improvement and diversification of methods of cost calculation must start from this real need of reconsidering current methods and assimilation of other improved methods, allowing commissioning of a genuine and appropriate information system necessary to the

management activity. Operability of information is a fundamental issue in taking a decision and consequently for the management activity.

Increasing the degree of responsibility of managers in obtaining operative information on the process of production and the revaluation in the decisions that are necessary for effective management of those units and the company as a whole is another question that is raised regarding the improvement of calculation method of costing in the mines from the Jiu Valley. Taking into account all these general requirements necessary for the management organization in order to increase the activity performance of these mining economic entities, can lead to a calculation method that will meet the challenges of efficient management of economic entities in market economy. Also, to increase efficiency of the costing method is of paramount importance also the selection of that information useful for the management business in certain circumstances, moments or periods of the mining activity in the Jiu Valley. Improving management accounting and costing calculation methods in the coal mining industry, thus requires the adoption of systems, methods and techniques of budgeting, collection and allocation of costs of production and costing.

The traditional calculation methods currently used, namely the general method combined with the order method, the phase method does not allow but a late determination of the cost per product, about in the middle of the next month for the preceding month, without providing adequate and operative information on material and living work consumption and, about how the internal activity is carried on, which actually plays a decisive role. But management accounting and costing by its means, must remove these shortcomings and to better reflect the internal activity of these mines in the Jiu Valley and to allow deviations from preset standards, results, causes and responsibilities for each sector. From the analysis in several economic entities in the coal mining from the coal basin located in Petrosani, Jiu Valley, showed that they use for their managerial accounting and cost calculation the general method, combined with the order method and the phase method. According to the methodological concept underlying these classical methods, as described in the literature, in the pre-calculation is determined the unitary production cost.

The lack of efficiency of this method is another limitation with major implications for the management process. Its application does not allow an effective and operational control over the use of material and living resources in the production process. Since the actual cost of the order is calculated only at the end of it, comparing this with the default cost for establishing deviations can be achieved only at this moment, which is late and practically information on such deviations, can not be used by the management in order to take decisions of eliminating adverse deviations and reduce costs.

In other words, there is in the methodological concept of this classical method no coherent system of tracking and operative reporting of deviations from the default costs on appropriate structures, on expenditure places as centres of responsibility and on causes. Therefore, the pace of providing information does not match with that required for decision-making. The level of actual costs at the end of each reporting period may not be known because an order can be maintained in manufacturing over several periods of management. However, even the actual cost determined with delay

can not be regarded as real and therefore even the calculated deviations based on it, can not be real, since for its calculation there are used many conventional criteria, such as for example, the allocation of indirect production costs and of general administration costs, etc. Another limitation of the overall method is also the fact, that being oriented towards full cost calculation unit, it focuses specifically on grouping the production and sales costs in direct and indirect ones, which does not allow their analysis in relation to the volume of production. It is known however that in economic terms the costs are examined in conjunction with the production volume, which requires using for their calculation the clustering of production and sales costs into fixed and variable, grouping that is used by all modern methods of management accounting and cost calculation.

Starting this year 2011, the Government intends to eliminate subsidizing coal mining, while the expenditure on raw materials and materials necessary for the production process have increased in recent years, so that for managers in the Jiu Valley mines, reducing production costs and improving the efficiency of extraction of coal with all that it implies have become primary targets.

Regarding these objectives, we can say that the current system of accounting, of costs calculation and their tracking does not meet the managers, some causes consisting for example of:

1. Calculating the actual cost of coal production, after it was extracted or even sold;
2. The calculation method used focuses primarily on grouping production costs into direct and indirect expenses, or all the expenses involved in the process of coal extraction should be done in conjunction with the volume of produced coal, some costs being fixed, and others having a variable character;
3. The calculation method currently used, does not provide specific and operational follow-up of production costs and it does not provide an immediate reporting of deviations from the budget;
4. The production costs do not reflect sufficiently the efficiency of the economic activity in the cost centres (sectors of production, investment sectors, sections, workshops, etc.) of the mines;
5. The way management accounting and costing is currently organized does not provide a separate record of unproductive expenditure;
6. Another drawback would be that between the auxiliary departments there are not highlighted the mutual accounting settlements, although it is known that these departments do works and services on a reciprocal basis.

Improving the costs calculation method, involves the study and analysis of needs and conditions, of the specific benefits offered by different methods and advanced techniques, taking into account the criterion of efficiency. This is enforced by the fact that one of the main shortcomings of the traditional calculation method used by mines in the Jiu Valley is that they fail to provide information necessary for a more detailed analysis, given by the complexity of manufacturing processes that take place within the mines.

## 5. CONCLUSIONS

As a consequence of the study, we found that a change is absolutely necessary in applying certain systems, methods and working techniques, depending on production needs and the company as a whole, in the Jiu Valley mining. These systems, methods and techniques of costing analysis must be the result of actual real situation with the prospect of future requirements relating to the objectives that are to be achieved, in order to improve the functional position that financial accounting and management accounting, and costing in particular, holds within the management activity of the Jiu Valley mining.

Based on a critical analysis of the situation, from which the positive items have to be kept, should promote new techniques to provide useful information for the management of the mining economic entities in taking decisions. In the region, at the National Coal Company SA Petrosani, the transition processes from a centralized economy to a market economy has put strong footprint, reducing the number of mines to seven today and continuing to reduce it to four in the near future. An important issue arising amid economic and social restructuring in the last 20 years is the cost reduction and growing the profitability of the mines in order to achieve performance, which is very difficult to meet, whereas in this field, the area faces an acute lack of information to allow optimal decisions for achieving the goals.

A first step in achieving these objectives, I believe that we could carry through the management accounting in the sense that the organization system of the management accounting of economic entities in the coal mining industry should be redesigned so as to enable:

1. Real and timely information of decision makers and particularly of the mining manager, on the cost of production;
2. Accurate and timely identification of activities taking place with higher costs than were originally planned;
3. Better decisions of the managers of mines in order to correct and analyze these occurring deviations for eliminating the possibility of repetition in the future;
4. Identification of all costs that contribute to achieving the production cost, to the smallest details in order to calculate it as accurate as possible.

Such a system of organization of management accounting, more appropriate for the activity of coal mining, we consider being that in which the cost calculation method applied is the standard cost method and modern techniques used should enable knowledge at any time of the true cost of production per ton of coal in its entirety.

*In conclusion*, for the Jiu Valley mining it is absolutely necessary the organization of management accounting in order to enhance their activity performance by introducing new methods of calculation of production costs, that should raise to top quality costs information, such for example, conventional methods, especially the standard method - cost and its specific accounting techniques.

## 6. ACKNOWLEDGEMENT

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