

## IMPROVING PERFORMANCES BY USING COST CONTROLLING IN THE MINING INDUSTRY ENTITIES

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### **Abstract**

*The aim of this article is to highlight the improving performances of entities from mining industry entities by using cost controlling as an important tool of management accounting, applying the target costing method. The survey is based on questions that led investigation made in the Romanian entities from mining industry and based on data a thorough analysis was done for fulfillment of authors' purpose. The results obtained by applying the target costing method has allowed a very strict cost control, which ultimately led to increased performances of economic entities from mining industry in Romania. The secondary purpose of this article is to try adjusting the target costing method to the specific of entities in the mining industry. According to studies of specialists this method based on target costing calculation is rather unusual in this sector of mining industry and it relies heavily on the activity-based costing method. The article ends with the authors' conclusions on improving the performances of entities from mining industry based on cost controlling and use of mix information obtained through the applied methods.*

**Keywords:** Controlling, target costing, performance, mining industry, sustainable development

**Classification JEL:** M41

### **1. Introduction and context of the study**

As result of globalization, the economic entities in the extractive industry in Romania are subjected today, more than ever, under pressure due to the economic downturn and increasing sustainability requirements. Thus, the economic entities began to change the manufacturing systems through the wider use of modern manufacturing technologies. Under a successful competitive economic climate, information on costs and their management have become essential for the management of economic entities, as well as the entire national economy. Wishing continuous improvement of performance entities, managers try alongside accountants' specialists or controllers to find those methods that guarantee achieving performance in the short or long term. Established at the request of top management, the analysis committee of an economic entity will consider those proposals carefully checked and documented by accountants specialists and controllers, and on this basis will prepare a synthesized analysis report indicating the most effective solutions identified. In conducting this article were taken into account two lines of research that forms its purpose, namely: (1) *an attempt to adapt the target costing calculation method to the specific of entities in the mining industry in Romania* and (2) *highlighting performance improvement of economic entities from mining industry through controlling using as instrument target costing method.*

## 2. Literature review

In literature, ABC method is presented as a tool to support the target costing method [5]. Many authors have stated that the target costing method is compatible with ABC method, providing information on costs necessary to achieve the objective of target costing method [9]. According to target costing method, the basis for establishing strategic plans must be the identification, measurement and control of the same source of costs, which should come from ABC method [8]. In this way, the source of the cost information is one obtained accurately because of used cost drivers which are the same and do not distort costs from period to period. The success of functioning of target costing method is due to the successful implementation of the ABC method. ABC helps improve processes undertaken within an entity providing cost transparency while the target costing method ensures objectives oriented retail market [7]. The mix between target costing method and ABC method based on complementary reciprocity leads to providing a very solid cost informational content that guarantees on long-term obtaining of superior performance and rigorous fundamental decisions. To cope with market requirements in the short term, at a complex production volume the indirect costs associated are increasing, which the ABC method is used. From this point of view, ABC resembles the target costing method on three issues [6]: determining the estimated cost, determining the cost drivers, using as a complementary tool.

The ABC method combined with the Target Costing method offers the opportunity to the design team to know that information about the activities and operations costs by allowing them to design the products at desired cost without sacrificing quality and functionality [11]. So, designers can easily understand the overall cost of production, cost drivers and cost of training factors, to determine more precise the cost estimates in product design [1]. According to target costing method in the early stages of the product design process, the ABC method includes common costs in the planning and allocation of target cost process [3].

Target Costing method	ABC method
<i>1. Determining the estimated cost</i>	
Activity costs depend on the products made according to market requirements	Activity costs are analyzed. It helps identify the activities needed to achieve the functions of products
<i>2. Determining the cost drivers</i>	
Provides information on market requirements such as: diversification of production, the use of various components, acquisition and production etc.	Presents the costs' structure of design alternatives. Activity costs are allocated on specific products using cost drivers
<i>3. Using as a complementary tool</i>	
It is used to determine the target cost using ABC method	It is used to achieve the target cost

*Source: Authors's vision*

Figure no. 1. Similarities and differences between Target Costing and ABC

Also in the mix of these two methods is obtaining the information necessary for the implementation and cost analysis team to realize the direct allocation of indirect costs on final products, taking into account their new designs. At the intersection of these two methods ABC and Target Costing is the establishing with accuracy of selling price based on the costs calculated precisely, thus preventing price fixing smaller or larger [12]. Although ABC is a tool for effective cost management that focuses more on the side of intrinsic internal processes down menus in an entity, the target costing method is creating an effective direct connection with the customers, and thus mix of the two methods focus more on costs and delivery time or customer requirements losing sight of factors such as: time and quality, which are very important for customers [2].

## 3. Methodology of research

Related to the two main objectives of this scientific approach, the authors conducted a case study on mining exploitations in the Jiu Valley, testing the reaction of two categories of participants (managers and department directors) when applying the target costing method, through a questionnaire which included the following questions: (1) *What instrument of monitoring and measurement of performance of the economic entities from mining extractive industry could be used successfully to improve performance?* (2) *Can be controlling an effective tool of management accounting which would help to ensure obtaining better performance?* (3) *The impact created using a mix of*

*management accounting methods has effect on the growth on informational content of costs and default on economic entities on the growth performance of mining extractive industry?*

In the study were taken into account and other techniques and research procedures such as: reviewing the literature, the use of diverse information sources (discussion, observation, interview), data collection and data processing, synthesizing of theoretical aspects and research results.

Table no. 1. Categories of respondents and their answers

Questions	Categories of respondents			
	Managers		Department directors	
	Yes	No	Yes	No
1. <i>What instrument of monitoring and measurement of performance of the economic entities from mining extractive industry could be used successfully to improve performance?</i>				
- ABC method	26	12	171	112
- Target Costing method	22	23	153	188
- other methods or mix of methods	44	18	344	145
2. <i>Can be controlling an effective tool of management accounting which would help to ensure obtaining better performance?</i>	122	23	756	357
3. <i>The impact created using a mix of management accounting methods has effect on the growth on informational content of costs and default on economic entities on the growth performance of mining extractive industry?</i>	98	47	823	290
<b>Total</b>	<b>145</b>		<b>1113</b>	
	<b>1258</b>			

*Source: Developed by authors*

Having analyzed the questionnaires, the analysis team concluded that the simplest, most viable and most efficient cost calculation method able to help the company under these market conditions would be the target costs method, as it relies on low costs and time, while the price-profit-cost analysis and the sustainable development indicators are tools guaranteeing the obtaining of performances by these entities. At the same time, the ABC-Target-costing method mix contributes to an increase of the informational contribution of the costs necessary to the mining industry companies' leadership for making efficient decisions. This contribution is due to the fact that they practice a very efficient administration control, which guarantees the increase of their performances.

#### 4. SWOT analysis

Based on the data provided by the economic entities of Jiului Valley, a SWOT analysis has been elaborated, which is presented in Table no. 2 and has been at the basis of the use of the ABC-TC method mix for the increase of their performances.

Table no. 2. SWOT analysis

SWOT analysis	
Strenghts	Weaknesses
<ul style="list-style-type: none"> <li>- situation in the only zone of pit coal exploitation of Romania;</li> <li>- concentration of the mining activity in a relatively limited area;</li> <li>- geological reserves for more than 20 years;</li> <li>- situation near the two main pit coal beneficiaries, namely the power plants of Mintia and Paroșeni;</li> <li>- the mining activity takes place only in the underground;</li> <li>- modern and high-performance technologies applied in a production sector.</li> </ul>	<ul style="list-style-type: none"> <li>- lean coal and high content of dust and sulphur of the coal extracted;</li> <li>- little experience of activity in an environment based on competition;</li> <li>- low productivity, at a level not accepted by the international standards;</li> <li>- quite precarious technical endowment, with a high degree of physical and moral wear;</li> <li>- relatively high number of employees compared to the quantity of products achieved and the quality of the products obtained;</li> <li>- conserving the production capacity means very high costs, hard to bear under the present financial conditions of the National Pit Coal Company (CNH).</li> </ul>
Opportunities	Threats

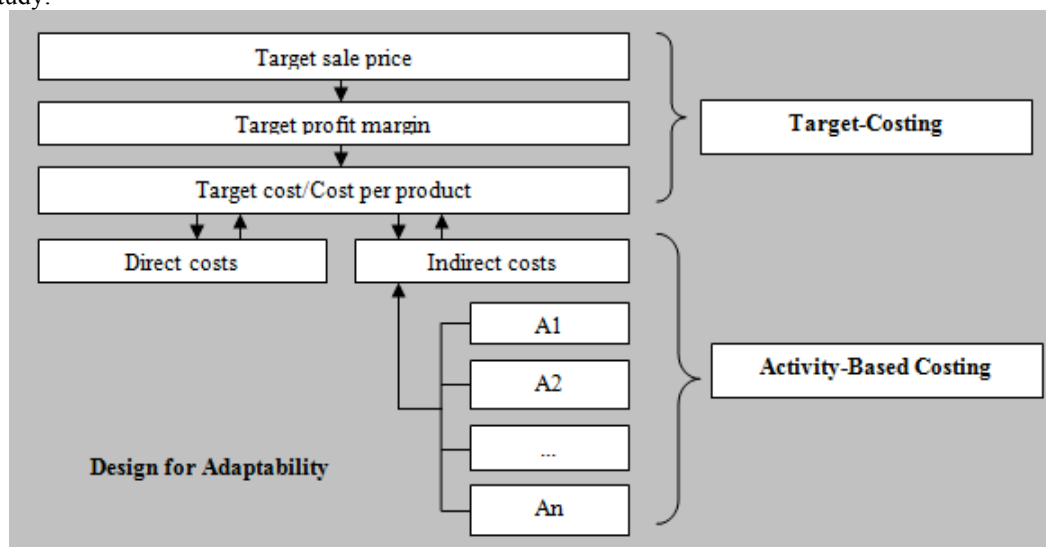
- increased productivity and reduction of costs by the concentration of the activity in consistent faults;  
 - the increase of the electrical power price makes it possible to increase the Gcal price paid to the coal providers;  
 - continuation of the investment programme for introducing new technologies and modernization;  
 - investigating the possibilities of catching / profitably using the pit gas emissions from the deposits under exploitation;  
 - continuation of the process of concentration of the production capacity in strata with coal biogas in considerable coal faults;  
 - the present world economic situation generated by the power crisis makes it possible to develop the electrical power production based on coal and implicitly develop the pit coal production;  
 - the growth of the production volume, corroborated to the reduction of the number of personnel, is leading to lower costs per ton of pit coal and implicitly to an increased production efficiency.

- the probability that the most important pit coal consumer of Romania – the power plant of Mintia – might replace the pit coal of Jiului Valley by imported pit coal or turn to the use of natural gas as fuel;  
 - repeated delays in the updating of the coal price according to the inflation, which has led to a very low sale price for pit coal;  
 - the social impact, on the level of the local community, of the high number of layoffs;  
 - high risk of occurrence of major mining accidents, with impact on the production capacity and the functioning of the exploitation;  
 - great sensitivity to the outbreak of work conflicts with concentration of large masses of workers, in a short while.

*Source: elaborated by the authors*

## 5. The use of the ABC-TC mix

Based on the general functioning scheme of the two methods in their combined variant (Figure no. 2) by which we identified the complementary role of these methods for each other, we moved on to the concentration of the data for the case study.



*Source: The authors' design for the variant of the ABC-TC mix*

Figure no. 2. Use of the ABC-TC mix

To take into account the market price, namely 285 lei/ton of coal, the economic entity has set itself the target profit margin of 9.377% of the price of a ton of coal:

$$9.377\% \times 285 \text{ lei/ton of coal} = 26.725 \text{ lei target profit margin/ton of coal}$$

The target cost is determined by external market factors, the SWOT analysis offering a good understanding and determination of the cost inductors for an economic entity of the mining industry. Treated as an approach of the management of the mining entity, the target cost relies on the rule according to which the market, not the costs of the economic entity dictates the sale price. Consequently, the formula according to which we calculate the target cost is:

$$285 \text{ lei sale price} - 26.725 \text{ lei target profit margin} = 258.275 \text{ lei target cost}$$

Consequently, the team analyzing the costs moved on to the identification of the processes and activities generating costs, to be able to remain within the limits of the target cost established. The economic entity under analysis is made up of three main production sectors and 4 secondary production sectors and the direct and indirect costs (on activities) identified are presented in Tables no. 3, 4 and 5.

Table no. 3. Direct expenses statement

Explanations	Production Sector 2 (lei)	Production Sector 3 (lei)	Production Sector 4 (lei)	Costs on activities (lei)
<b>Expenses on direct materials</b>				
Explosives	21162	19033	24254	64449.00
Armatures, clamps	14712	4237	14021	32970.00
Basketry	36145	32508	153111	221764.00
Wood	16714	15033	19877,3	51624.30
Prefabricated blocks	699.67	900	1700	3299.67
Ballast sand	120	213	229,96	562.96
Various materials	73061	65760	226153	364974.00
Fuel	3023	2719.07	6055	11797.07
Spare parts	20962	33336	45412	99710.00
Consumables	3007	1803	5317	10127.00
<b>Total expenses on direct materials</b>	<b>189605.67</b>	<b>175542.07</b>	<b>496130.26</b>	<b>861278.00</b>
<b>Direct salary expenses</b>				
Expenses on salaries	595324	604926	1090058	2290308.00
<b>Other direct expenses</b>				
Electricity	20779	18687	71260	110726.00
Water	522	570	1547.57	2639.57
Amortization	145193	130583	457224	733000.00
Inventory objects	828	744	2606.45	4178.45
GFR	106210.95	95523.74	334465.31	53620000
Packaging	46	54	153.01	253.01
Transport of materials	7636.29	6873.19	23638.34	38147.82
<b>Total direct expenses</b>	<b>1358525.91</b>	<b>1330600.00</b>	<b>3012442.94</b>	<b>5701568.85</b>

Source: processing of the data collected from E.M.Lupeni

Table no. 4. Indirect expenses statement (on activities)

Explanations	Sector 5: ground transport	Sector 6: ground electromechanic	Sector 7: ground airing	Sector 5: underground transport	Sector 6 underground electromechanic	Sector 7 underground airing	Costs on activities lei
Various materials	0.00	0.00	0.00	2043.00	1831.00	0.00	3874.00
Fuel	2987.00	478.00	0.00	0.00	0.00	0.00	3465.00
Spare parts	0.00	19584.26	0.00	0.00	0.00	0.00	19584.26
Electricity	465297.85	278322.00	0.00	561.00	191259.00	0.00	935439.85
Thermal energy	7788.00	21272.00	0.00	0.00	0.00	0.00	29060.00
Amortization	0.00	3904.00	0.00	26707.00	17770.24	3252.00	51633.24
Transport	0.00	0.00	0.00	237.00	16800	0.00	405.00
Equipment repairs	0.00	0.00	0.00	29491.76	0.00	0.00	29491.76
Services to third parties	0.00	0.00	0.00	25580.14	525609.74	0.00	551189.88
Antidote liquids	0.00	0.00	0.00	175.38	0.00	0.00	175.38
Salaries	242500.00	310000.00	25000.00	264000.00	600000.00	369000.00	1810500.00
Accessories to salaries	67980.00	86902.00	7.008.00	298896.00	183821.00	131514.00	776121.00
<b>Total Indirect expenses (lei)</b>	<b>786552.85</b>	<b>720462.26</b>	<b>32008.00</b>	<b>647691.28</b>	<b>1520458.98</b>	<b>503766.00</b>	<b>4210939.37</b>

Source: processing of the data collected from E.M.Lupeni

Table no. 5. Collection of administrative and supplies expenses (on activities)

Administrative activities	Total (lei)
- Remuneration	480765.00
- Management of immobilizations	155252.52
- Material stocks management	7251.50
- Drafting of cost calculations	63.00
- Inventory of patrimony	136600.00
- Calculation of result	1208.78
- Checking up costs	34521.00

<b>Administrative activities</b>	<b>Total (lei)</b>
- Drafting quality documents	148.00
- Budget drafting and check-up	5458.00
- Maintaining partnership relations	708.97
- Administration of personnel	2913.02
- Assuring secretariat and registrature	110960.64
- Training the leadership	33557.41
- Resource management control	205435.89
- Carrying out controls, audit	35508.06
- Labour medicine	25306.78
- Labour protection	3921.65
- Keeping documents	27055.97
- Recording documents	73910.97
- Reimbursement of various expenses	1200.00
- Assuring cleanliness	7108.00
<b>Total</b>	<b>1348855.16</b>
<b>Activities related to supplies</b>	<b>Total (lei)</b>
Salaries related to supplies	58497.00
Selection of providers	47890.00
Launching and receiving orders	65679.03
Stocking materials	86430.00
<b>Total</b>	<b>258496.03</b>

Source: processing of the data collected from E.M.Lupeni

The analysis team identified a list of the cost inductors used to allot the expenses on activities (Table no. 6) and also established the number of inductors allotted on the 3 main production sectors (Table no. 7).

Table no. 6. Statement of cost inductors

<b>Unit of measurement</b>	<b>Cost inductor symbol</b>
Number of consumption tickets (kg, piece)	NBC
Number of consumption tickets (liters)	NBC
Number of spare parts	NPS
Number of kwh consumed	NKC
Number of Gcal consumed	NGC
Normal duration of use (share corresponding to the amortization graph)	DNU
Number of repairs carried out	NRE
Number of receipts of third parties	NFT
Number of kilometers	NKM
Number of hours carried out	NOE
Consumption in liters	CL
Number of insurance contracts	NCA
Number of bank commissions	NCB
Number of post/fiscal stamps	NTP/F
Number of taxes paid	NTP
Number of people with handicap	NPH
Number of people with assignments in other locations	NPD
Supplementary sums allocated	SSA
Sums for supplementary energy consumption	SCSE
Number of people hired	NPA
Number of protection equipments	NEP
Number of trained employees	NAI
Number of medical care employees	NAIM
Number of employees in need of help	NANA
Value of phone subscriptions	VAT
Number of firms ensuring safety and protection	NPP
Quantity of product	tone
Quantity stocked	CS
Number of orders	NC

Source: elaborated by the authors

Table no.7. Statement of cost inductors shared on activities, on cost centres

Explanations	Cost center			Cost inductor quantity
	Sector 2	Sector 3	Sector 4	Total
01. Expenses on various materials	8	6	10	24
02. Expenses on fuel	540	485	1080	2105
03. Expenses on spare parts	10	16	22	48
04. Expenses on electricity SF	375462	415014	562580	353056
05. Expenses on electricity SB	110256	112108	132589	354953
06. Expenses on thermal energy	35	29	47	111
07. Expenses on amortization	19.596.19	18154.10	39038.95	76789.24
08. Expenses on transport of materials	20	20	20	60
09. Expenses on equipment repairs	60	30	50	140
10. Expenses on services offered by third parties	7	5	14	26
11. Expenses on liquid antidote	10	10	25	45
12. Expenses on salaries SF	10566.40	10733.02	19340.58	40640
13 Expenses on salaries SB	10566.40	10733.02	19340.58	40640
14. Expenses on accessories to salaries SF	53788.80	54637.00	98454.20	206880
15. Expenses on accessories to salaries SF	53788.80	54637.00	98454.20	206880
16. Expenses on remuneration (ADM)	10566.40	10733.02	19340.58	40640
17.Verification of costs	3	4	3	10
18.Calculation of result	1	1	2	4
19.Drafting of quality documents	1	1	1	3
20.Budget drafting and check-up	1	1	1	3
21.Maintaining partnership relations	2	3	3	8
22.Administration of personnel	1	1	2	4
23. Maintaining partnership relations	2	2	3	7
24.Preparing the leadership	35	36	46	117
25. Controlling resource management	4	5	7	16
26.Carrying out controls, audit	1980	1980	1980	5940
27.Labour medicine	302	254	250	806
28.Labour protection	35	36	46	117
29.Keeping documents	45	42	56	143
30.Reimbursement of various expenses	1260	1298	2306	4864
31.Assuring cleanliness	1	1	1	3
32. Expenses on electricity for lighting and motor force for administrative-domestic needs	2980	3100	3843	9923
33. CNH share	1	1	1	3
34.Taxes	1	1	1	3
35.Launching and receiving orders	1	1	2	4
36.Material stocks management	670	594	830	2094
37. Provider selection	4	4	6	14
38. Quantity of product	8586	8100	27917	44603

Next, the analysis team moved on to allotting the expenses pertaining to the activities on the three main production sectors (Table no. 8).

Table no. 8. Allotment of the expenses related to the activities on the basic production, based on the specific cost inductors

Activity center	Allotment coefficient	Allotment basis	Share allotted (lei)
Sector 2	161,42	8	1291,33
Sector 3	161,42	6	968,5
Sector 4	161,42	10	1614,17
01.Expenses on various materials (SB)		24	3874,00
Sector 2	1,65	540	888,88
Sector 3	1,65	485	798,35
Sector 4	1,65	1.080	1777,77
02.Expenses on fuel (SF)		2105	3465,00
Sector 2	408,01	10	4080,05
Sector 3	408,01	16	6.28,09
Sector 4	408,01	22	8976,12
03.Expenses on spare parts (SF)		48	19584,26

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Sector 2	0,55	375462	206.48,44
Sector 3	0,55	415014	228085,64
Sector 4	0,55	562580	309185,77
04.Expenses on electricity (SF)		1.353.056	743619,85
Sector 2	0,54	110.256	59583,40
Sector 3	0,54	112.108	60584,24
Sector 4	0,54	132.589	71652,37
05.Expenses on electricity (SB)		354.953	191820,00
Sector 2	261,80	35	9163,06
Sector 3	261,80	29	7592,25
Sector 4	261,80	47	12304,68
06.Expenses on thermal power		111	29060,00
Sector 2	0,67	19.596,19	13176,52
Sector 3	0,67	18.154,10	12206,85
Sector 4	0,67	39.038,95	26249,87
07. Expenses on amortization related to auxiliary and main sections		76.789,24	51633,24
Sector 2	6,75	20	135
Sector 3	6,75	20	135
Sector 4	6,75	20	135
08. Expenses on transport of materials		60	405
Sector 2	210,66	60	12639,33
Sector 3	210,66	30	6319,66
Sector 4	210,66	50	10532,77
09.Expenses on equipment repairs SB		140	29491,76
Sector 2	21.199,61	7	148397,28
Sector 3	21.199,61	5	105998,05
Sector 4	21.199,61	14	296794,55
10. Expenses on services offered by third parties (SB)		26	551189,88
Sector 2	3,9	10	38,97
Sector 3	3,9	10	38,97
Sector 4	3,9	25	97,43
11. Expenses on antidote liquids of the auxiliary section (SB)		45	175,38
Sector 2	14,21	10.566	150150,00
Sector 3	14,21	10.733	152517,75
Sector 4	14,21	19.341	274832,25
12.Expenses on salaries (SF)		40.640	577500,00
Sector 2	30,34	10.566	320580,00
Sector 3	30,34	10.733	325635,25
Sector 4	30,34	19.341	586784,75
13.Expenses on salaries (SB)		40.640	1233000,00
Sector 2	0,78	53.789	42091,40
Sector 3	0,78	54.637	42755,14
Sector 4	0,78	98.454	77043,46
14.Expenses on accessories to salaries (SF)		206.880	161890,00
Sector 2	2,97	53.789	159700,06
Sector 3	2,97	54.637	162218,38
Sector 4	2,97	98.454	292312,56
15.Expenses on accessories to salaries (SB)		206.880	614231,00
Sector 2	11,83	10.566,40	124998,90
Sector 3	11,83	10.733,02	126969,99
Sector 4	11,83	19.340,58	228796,11
16.Expenses on remuneration (ADM)		40.640	480765,00
Sector 2	38813,13	1	38813,13
Sector 3	38813,13	1	38813,13
Sector 4	38813,13	2	77626,26
17 Management of immobilizations		4	155252,52
Sector 2	1208,58	1	1208,58
Sector 3	1208,58	2	2417,17
Sector 4	1208,58	3	3625,75
18 Management of stocks of materials		6	7251,50
Sector 2	15,75	1	15,75
Sector 3	15,75	1	15,75



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Sector 4	15,75	2	31,50
19. Drafting of cost calculation		4	63,00
Sector 2	15177,8	3	45.533,33
Sector 3	15177,8	3	45.533,33
Sector 4	15177,8	3	45.533,33
20. Inventory of patrimony		9	136.600,00
Sector 2	302,2	1	483,51
Sector 3	302,2	1	241,76
Sector 4	302,2	2	483,51
21. Calculation of result		4	1208,78
Sector 2	3.452,10	3	10.356,30
Sector 3	3.452,10	4	13808,40
Sector 4	3.452,10	3	10356,30
22. Verification of costs		10	34521,00
Sector 2	49,33	1	49,33
Sector 3	49,33	1	49,33
Sector 4	49,33	1	49,33
23. Drafting of quality documents		3	148,00
Sector 2	1819,33	1	1819,33
Sector 3	1819,33	1	1819,33
Sector 4	1819,33	1	1819,33
24. Budget drafting and check-up		3	5458,00
Sector 2	88,62	2	177,24
Sector 3	88,62	3	265,86
Sector 4	88,62	3	265,86
25. Maintaining partnership relations		8	708,97
Sector 2	728,26	1	728,26
Sector 3	728,26	1	728,26
Sector 4	728,26	2	1456,51
26. Personnel administration		4	2913,02
Sector 2	15.851,52	2	31703,04
Sector 3	15.851,52	2	31703,04
Sector 4	15.851,52	3	47554,56
27. Assuring secretariat and registrature		7	110960,64
Sector 2	286,82	35	10038,54
Sector 3	286,82	36	10325,36
Sector 4	286,82	46	13193,51
28. Preparing the leadership		117	33557,41
Sector 2	12839,74	4	51358,97
Sector 3	12839,74	5	64198,72
Sector 4	12839,74	7	89878,20
29. Resource management control		16	205435,89
Sector 2	5,98	1980	11836,02
Sector 3	5,98	1980	11836,02
Sector 4	5,98	1980	11836,02
30. Carrying out controls, audit		5940	35508,06
Sector 2	31,4	302	9482,19
Sector 3	31,4	254	7975,09
Sector 4	31,4	250	7849,50
31. Labour medicine		806	25306,78
Sector 2	33,52	35	1173,14
Sector 3	33,52	36	1206,66
Sector 4	33,52	46	1541,85
32. Labour protection		117	3921,65
Sector 2	189,2	45	8514,12
Sector 3	189,2	42	7946,51
Sector 4	189,2	56	10595,34
33. Keeping documents		143	27055,97
Sector 2	10558,71	2	21117,42
Sector 3	10558,71	2	21117,42
Sector 4	10558,71	2	21117,42
34. Recording documents		6	63352,26
Sector 2	0,25	1260	310,86

Sector 3	0,25	1298	320.23
Sector 4	0,25	2306	568.91
35.Reimbursements of various expenses		4864	1200.00
Sector 2	2369,33	1	2369.33
Sector 3	2369,33	1	2369.33
Sector 4	2369,33	1	2369.33
36.Assuring cleanliness		3	7108.00
Sector 2	19499	1	19499.00
Sector 3	19499	1	19499.00
Sector 4	19499	1	19499.00
37.Supplies salaries		3	58497.00
Sector 2	3420.714286	4	13682.86
Sector 3	3420.714286	4	13682.86
Sector 4	3420.714286	6	20524.29
38. Selection of providers		14	47890.00
Sector 2	16419.7575	1	16419.76
Sector 3	16419.7575	1	16419.76
Sector 4	16419.7575	2	32839.52
39.Launching and receiving orders		4	65679.03
Sector 2	41.275	670	27654.30
Sector 3	41.275	594	24517.39
Sector 4	41.275	830	34258.31
40.Stocking materials		2094	86430.00
Sector 2	0.2367	8586	2032.53
Sector 3	0.2367	8100	1017.48
Sector 4	0.2367	27917	6608.69
41.Coal sale		44603	10558.71

Source: elaborated by the authors

After the centralization of the data, we obtain the following costs on activities for the three main production sectors:

$$Ca_{\text{Sector2}} = 1358525.91 + 1579639.46 = 2938165.37 \text{ lei}$$

$$Ca_{\text{Sector3}} = 1330600.00 + 1577179.32 = 2907779.32 \text{ lei}$$

$$Ca_{\text{Sector4}} = 3012442.94 + 2661471.78 = 5673914.72 \text{ lei}$$

Therefore, the cost per unit for the three activity sectors will be:

$$Cu_{\text{Sector2}} = \frac{2938165,37}{8596} = 341,81 \text{ lei / ton} \quad Cu_{\text{Sector3}} = \frac{2907779,32}{8100} = 358,99 \text{ lei / ton}$$

$$Cu_{\text{Sector4}} = \frac{5673914,72}{27917} = 203,24 \text{ lei / ton}$$

$$Cu_{\text{EM.LUPENI}} = \frac{11519859,41}{44603} = 258,275 \text{ lei / ton}$$

The total cost per unit is

## 6. Cost control

The role of controlling consists in the coordination of all the processes of an entity in order to reduce the costs, maximize cashing in and accomplish the strategic goals of the entity. Beside coordination, controlling also helps with the planning, control and information in the sense of the obtaining of the results desired by the leadership, also emphasized by the strategic objectives established. Controlling has three main features: (1) it addresses the entire entity, being unique and having an opening to all the activities and processes; (2) it is oriented towards the future, having in view the permanent improvement of the processes and functions of the entity; (3) it is decision-oriented, preparing all the information that the management needs. The management will make the decision based on the data provided by the controlling department.

Table no. 9. Budget control report

Indicators	Month under consideration: December			Totalled for the year 2015			
	Budgeted	Realized	Deviations	Budgeted	Realized	Deviations	Obs.
Physical production (t)	46900	44603	2297	503100	477173	25927	-
Merchandise production (lei)	8971	8664	307	109834	95518	14,316	-
Direct costs (lei)	5693641,25	5701568,85	7927,60	68323687,32	68418826,20	95138,88	-
Indirect costs (lei)	5810221,39	5818290,56	8069,17	69722656,68	69819486,72	96830,04	-
Total costs (lei)	11503862,64	11.519.859,41	15996,77	138046344	138238312,92	191968,92	-

Source: elaborated by the authors

## 7. Conclusions

After having carried out the case study on the topic investigated, by the objectives proposed we have reached the following conclusions:

1. Management control helps the administration meet the objectives of the entity and is an important tool for the evaluation of its performance. At the same time, management control is a process of management of the behavioral changes and an environment putting together the collective energy for the success of the entity's objectives. By the actions of planning, control and diagnosis, management control is in line with the strategies delineated by the leadership of the economic entity and helps obtain performances [10].
2. The use of the ABC-TC method mix contributes to increasing the efficiency of the process meant to design products and identify cost-reduction possibilities, and harmonize the activities in the economic entities of the mining industry [4] being two instruments that are very useful in managerial accounting. The ABC-TC methods mix and the complementariness of the advantages offered by these methods help the entity accomplish its objectives, while the information provided helps the leadership make adequate decisions.
3. The ABC method can be used for a better cost forecasting, for the identification of the losses on products, costs reduction, costs budgeting and measurement of the entity's performances and, along with the Target Costing method, it contributes to designing more competitive products and consolidating the informational system of the entity.

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