CONCEPTUAL-METHODOLOGICAL BASES OF COST-BENEFIT ANALYSIS IN THE EVALUATION AND RATING OF THE COST-EFFECTIVENESS OF PROJECTS

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Abstract: Cost-benefit analysis is a very useful tool in modern project management and decision-making, used to assess the cost-effectiveness of a project. The choice of a project and the way (model) how the most cost-effective option will be financed depend on the results of said analysis. Cost-benefit analysis, whose basic parts are financial and economic analyses, has the broadest application in researching project acceptability. It is applied in the selection of public projects and for the purpose of evaluating the private projects partly financed from state funds, through loans or foreign investments (primarily through the sale of shares and bonds), and for the purpose of evaluating projects with negative externalities as well.

In this article, financial analysis is first addressed as a comprehensive cash flow assessment which includes the analysis of the total investments, the analysis of operating costs and revenues, and the financial sustainability of a project, after which an answer to the question of the effects of the project's market and nonmarket effects is obtained through an economic analysis, in which the conversion of accruals into current prices and the monetization of the project's nonmarket effects are performed, based on which analysis the indirect effects of the project are included in the analysis. Finally, the social value of the project is determined within the framework of this analysis by discounting reduced costs and benefits.

Keywords: cost-benefit analysis, investments, assessment, financial analysis, economic analysis

INTRODUCTION

Cost-benefit analysis is integral analysis applied in the assessment of the acceptability of public projects, because it includes the financial and economic analysis of projects. (Vining, Weimer, 2010) It is a complete analysis of a project's benefits and costs, which is carried out according to a rather complex procedure in order to determine the economic (social) profitability of a project from the point of view of the company and its owner. Although it is most often used in assessing the acceptability of public projects, it is also used as a valuable tool in many industries where it is necessary to compare costs and benefits, such as decision-making tools and techniques (Okicic, 2019) or often where it is necessary to analyze the justification for different implementations in the field of sustainable development (Bogdan et al., 2018). Cost-benefit analysis analyzes the cost-effectiveness of investing in a project, as it summarizes and contrasts all costs (both direct and indirect) with anticipated benefits so as to assess whether the effects outweigh the total investment or not. In contrast, financial analysis only includes market effects and provides an assessment of the profitability of a project from the investor's point of view. The economic (social) profitability of a project is provided by the economic analysis that includes market and nonmarket effects in the evaluation of a project, which speaks in favor of the fact that economic analysis is much broader in scope than financial analysis. Economic analysis may indicate the multiple profitability of a project, which is the reason why it will be accepted regardless of the negative results of such financial analysis.

Costs and benefits caused by public projects affect all the areas of social life, such as the living standards, the economy, the environment, human health, and so on. Therefore, this analysis is much more complex and significantly more expensive than the analysis of private projects in which only the financial viability of projects is assessed. It is carried out by state institutions such as ministries, funds, and nonprofit organizations in order to implement a certain investment venture. This analysis is performed in the implementation of public projects such as the construction of bridges, tunnels, highways, hospitals, and so forth. Given the fact that the implementation of public projects requires a longer period of time, which brings with itself certain types of risks, this analysis gives the state authorities an assessment of the acceptability of a public project from the point of view of the whole society. For example, the construction of highways, bridges and tunnels provides savings in time and fuel and reduces the number of traffic participants' deaths.

The evaluation of projects faced the development of new economic assessment versions in government organizations, independent funds and international institutions: Structural Funds of the European Community (Guide to Cost-Benefit

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Analysis (2014)), European Investment Bank (Economic Appraisal (2013), Asian Development Bank (Guidelines (2017)). (Novikova, 2020)

In the first part of the paper, financial analysis is dealt with as a comprehensive assessment of cash flows, including the following: the analysis of the total investments, the analysis of operating costs and revenues and the financial sustainability of the project. After that, economic analysis is made, in which the conversion of accounting prices into current prices and the monetization of the nonmarket impacts of the project are performed, based on which the indirect impacts of the project are included in the analysis. Within this analysis, the social value of the project is then determined by discounting the reduced costs and benefits.[1] (Communities and Local Government, 2009)

2. THE FINANCIAL ANALYSIS OF THE PROJECT PROFITABILITY

1.1 Total Investments

Total investments are cash outflows from enterprises, arising from the acquisition of fixed and current assets. Fixed assets are the assets gradually consumed while being used. The outflow of money from a company arises from investments in fixed assets, which is the reason why the amounts of the purchases of these assets have a negative sign. (Paunovic, Zipovski, 2020) The acquisition of working capital creates current obligations, because no payment is made immediately at the time of receipt, but rather the obligation is extinguished within a year. The balance of working capital is adjusted downwards in one year, because it is consumed in one production cycle, which is presented in Table 1:

Table 1 The overview of the total investments (in 000 euros)

	Purpose of investment (by years)	Years					
		1	2	3	4	5	6
1.	Land	-1,000					
2.	Buildings	-2,200					
3.	Equipment	-1,500		-1,000		-1,200	
4.	Capital maintenance			-20			
5.	Residual value						40
A	Total value of fixed assets (1 + 2 + 3 + 4-5)	-4,700	0	-1,020		-1,200	40

[1]In addition to cost-benefit analysis, there are other analyses that can be used in investment decision-making, such as: 1) cost-effectiveness analysis (CEA); 2) multicriteria analysis (MCA) and 3) economic impact analysis (EIA). Nevertheless, cost-benefit analysis is the most comprehensive benefit-cost analysis, and all the other analyses are best used as a supplement.

6.	Research & Development	-200					
7.	License	-500					
8.	Employee training	-150		-100			
B	Total start-up costs	-850	0	-100	0	0	0
9.	(6 + 7 + 8)	400	700	750	800	800	950
10.	Current assets	280	200	280	380	300	440
11.	Current liabilities	120	500	470	420	500	510
C	Net working capital (9-10)	-120	-380	- 90	- 330	- 170	- 340
	Total investment (A + B + C)	-5,670	-380	-1,210	- 330	-1,370	- 300

As is shown in Table 1, the difference between the current assets and the current liabilities represents the value of the net current assets. However, we should bear in mind the fact that the calculation of change in the net working capital in the current year compared to the previous year is based on the difference between the amount of the net working capital in the current year compared to the previous year (470-380 = -90, the sign is – (negative) because it is the sum cash outflow).

1.2 Operating Expenses and Operating Income

Operating costs and operating revenues are the estimated costs and revenues that arise during the implementation of a project. The World Bank has recommended that certain groups of costs and benefits be excluded from this analysis when determining the social benefits and costs of an investment project. Transfer payments (the repayment of the principal and interest on loans, taxes and subsidies) are not included in operating expenses, because they only transfer resources from one sector to another. They do not represent the actual use of resources. Business revenues do not include value added tax (included in the price of sold products/services) and the cash inflows realized on the basis of subsidies and state grants. Operating revenues represent the revenues arising from the sale of products and services on the market. Costs include direct production costs (costs of material, wages, production and nonproduction services), costs of administration (costs of management) and costs of sale. (Cupic, 2009)

It is characteristic of public sector projects that expected revenues are often lower than expected operating costs, because the prices of public sector products and services are significantly lower than the prices that would be formed in market conditions. They are formed by state bodies. So, such projects may often prove to be financially unprofitable. However, public projects are still implemented, because the most important thing pertaining to them is that they are socially profitable and ensure well-being for the entire society.

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Table 2 The overview of the operating costs and operating revenues (in euros)

Types of the operating income and the operating expenses		Years					
		1	2	3	4	5	6
1.	Cost of materials	0	-800	-870	-900	-950	-1,000
2.	Costs of earnings	0	-600	-700	-800	-850	-850
3.	Selling expenses	0	-200	-360	-400	-430	-450
4.	Costs of management	0	-450	-500	-520	-550	-600
A	Total estimated business costs (1 + 2 + 3 + 4)	0	-2,050	-2,430	-2,620	-2,780	-2.900
5.	Revenues from the sale of products	0	1,600	4,800	5,000	5,000	6,000
6.	Revenues from activating products for own needs	0	300	0	520	680	0
B	Total estimated operating income (5 + 6)	0	1,900	4,800	5,520	5,680	6,000
Total estimated net operating income		0	-150	2,370	2,900	2,900	3,100

Table 2 provides an overview of the operating expenses and the operating income. The operating expenses have a minus sign, because they cause monetary outflows, unlike business income. Based on that fact, the opposition between the operating costs and the operating revenues determines the net operating income, which can have either a positive sign or a negative sign. The table shows that there are no operating costs or operating revenues in the first year, because initial capital investments, which are the basis for starting production, are made then.

In order to assess the acceptability of the project, not only the direct costs whose value is measurable should be included. Indirect costs, i.e. the costs that a company brings to itself, should also be included. Indirect costs are those costs that arise from the impact the project makes on a wider region and on a narrower region. These are, for example, the losses caused by the destruction of the environment due to the construction of highways, the pollution of water, air and land caused by the operation of factories, which leads to endangering the lives of the local population. There are direct and immediate benefits to society, arising from the implementation of the project. Indirect benefits are expressed by a reduction in a trade deficit, an increase in employment, an increase in exports, an increase in demand for raw materials and, based on that, encouraging the development of the extractive industry. Immediate benefits reflect in an increase in the source revenues of the state budget, which are income tax, taxes and contributions on employees' salaries, and so forth. However, we should bear in mind the fact that, when making a decision on providing financial support to projects, the state may also support those projects that bring negative effects on society to a certain extent, which is so because the production of public goods cannot be achieved without certain negative effects affecting society. However,

it is important to note that the positive effects of the implementation of the public project outweigh its negative effects. The eligibility limit is determined by the state administration.

1.3. Financial Return on Investment

If the amount of the estimated total cash inflows is reduced by the total cash outflows, the amount of the net cash flow is obtained for each year of the analyzed period. The inflows are formed from the operating income, whereas the outflows of money arise based on the investments and costs the project implies. (Florio Vignetti, 2003) In the continuation of the financial analysis, it is necessary to compare the data from the overviews 1 and 2, based on which Table 3 is formed.

Table 3 The overview of the cash inflows and outflows (in 000 euros, current prices)

Expected cash flows by year		Years					
		1	2	3	4	5	6
1.	Total estimated operating income 0	0	1,900	4,800	5,520	5,680	6,000
A	Total estimated business inflows (1)	0	1,900	4,800	5,520	5,680	6,000
2.	Total estimated operating costs	0	-2,050	-2,430	-2,620	-2,780	-2,900
3.	Total estimated investments	-5,670	-380	-1,210	-330	-1,370	300
B	Total estimated cash outflows (2 + 3)	-5, 670	-2,430	-3,640	-2,950	-4,150	-3,200
Expected total net cash flow (for the analyzed period) (A + B)		-5,670	-530	1,160	2,570	1,530	2,800

The expected net cash flows, i.e. the cash flow balance (in the entire project lifecycle) was estimated according to the actual (current) market prices in each of the analyzed years. The nominal amount of the cash inflows and outflows changes under the influence of changes in market prices, on the one hand, and the spent factors of production and the sales volume, on the other. If cash inflows (revenues) are higher than cash outflows (investments and expenses), the net cash flow has a positive sign (i.e. it generates benefits), whereas otherwise, it has a negative sign (i.e. it causes damage). It is estimated that the cash flow will be negative in the first two years, and positive in the remaining period. Based on the sum of the net cash flows in the entire analyzed period (-5,670,000 - 530,000 + 1,160,000+ 2,570,000 + 1,530,000 + 2,800,000 = 1,860,000 euros), it could be concluded that the total benefits (+ 8,060,000 euros) exceed the total damages (- 6.200.000 euros). However, we should bear in mind the fact that, in order for the project cash flows for each year to be comparable, they must be expressed in the monetary units of equal value, which means that all the costs and revenues must be reduced by applying a discounting technique to a common single

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measure in order to determine the net present value of future cash costs and benefits. Based on Table 4, the investor knows how much the estimated (future) income is, and what costs and investments are against that income, i.e. whether a positive cash flow or a negative cash flow can be expected at the end of each year. It is in his interest, however, that each of these flows is realized as soon as possible in order to make new investments. Therefore, the investor wants to know today's worth of such future cash flows from the implementation of the project. If expected net cash flows are calculated according to the current prices, then the discounting technique is used to reduce the nominal cash flows to their present value. (European Commission, 2008) Cost-benefit analysis most often uses corrected market prices, usually called billing prices or shadow prices, which correct irregularities in the formation of market prices due to market imperfections (a monopoly, the effect of the measures of the economic policy, etc.).

The present value of a certain amount of money in the nth year are calculated by discounting according to the expression:

$$\text{Present value} = \frac{\text{Future amount of money}}{(1+r)^n} \qquad (1)$$

The recalculation of the expected cash flows by using the discounting technique is performed for each year of the analyzed period. The monetary units of the year in which the initial investment was realized are determined by applying a discount rate of 4%, as is given in Table 4 below:

Table 4 Cash flow discounting (in 000 euros, current prices)

Years	Expected nominal net cash flows	Expression $(1+r)n$	Present value of net cash flows
1.	- 5,670	$(1+0.04)0=1.00000$	-5,670
2.	-530	$(1+0.04)1=1.04000$	-510
3.	1,160	$(1+0.04)2=1.08160$	1,072.48
4.	2,570	$(1+0.04)3=1.12486$	2,284.73
5.	1,530	$(1+0.04)4=1.16985$	1,307.86
6.	2,800	$(1+0.04)5=1.21665$	2,301.40
Net cash flow (for the analyzed period)	1,860	Present value of the net cash flow (for the analyzed period)	786.47

Table 4 shows that the time value of the money is taken into account by applying a discount rate of 4%, based on which it can be concluded whether the investment in

the project is financially profitable or not. The potential investor is interested in what the total net present value of the cash flows expected in the economic life of the project is (NPV (f) - Financial Net Present Value on Investment Cost). This value is determined based on the present value of the cash flows in all the years of the planning period. The present value is formed based on the current market-formed and administratively regulated prices, regardless of the fact that they may be distorted (as a reflection of the overall situation in the national economy). This indicator is important to the investor (the person making a proposal for the project), because it is natural that that person is interested in the financial profitability which respects the current prices, no matter how they were formed. According to Table 5, in the 1st and 2nd years, a negative net present value was realized (-5,670,000 - 510,000 = - 6,180,000 euros), whereas in the other years of the analyzed period, the investment would bring a positive net present value of the cash flow (1,072,480 + 2,284,730 + 1,307,860 + 2,301,400 = 6,696,470 euros). This investment brings a total positive net present value in the amount of 786,470 euros, which means that it is financially profitable (for the investors and financiers) and it would be chosen if it were the only investment. If the net present value (for the entire analyzed period) were negative, the investment in the project would not be profitable, because the losses for the size of that amount would be greater than the benefits. However, we should bear in mind the fact that, if more alternative investments are analyzed, the choice falls on the project whose NPV is the largest in that particular case.

Table 5 shows that the expected unadjusted net cash flow amounts to EUR 1,860,000, and that the expression is worth EUR 786,470 today by applying the discounting method. Based on this example, it can be concluded that the method for discounting is significant, because it reduces the net future amount of the cash flow to the value.

1.4. The Financial Sustainability of the Project

A project is financially viable if the net cash flow (i.e. the difference between cash inflows and cash outflows) is positive in the years of the analyzed period. In that case, the cumulative net cash flow is also positive. If this condition is not met, the project becomes financially unsustainable, because cash inflows are smaller than cash outflows, which is the reason why its implementation is questionable.

To a potential investor who needs to make a decision on whether to finance a company's project or not, it is important whether the project is financially sustainable or not, i.e. expected cash inflows (including financial sources) and cash outflows (including credit liabilities) should correspond with each other in each individually observed year of the analyzed period. Cash outflows include investments in fixed assets (buildings, land, equipment, equipment maintenance, etc.) and operating

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expenses and credit obligations (the repayments of the principal and interest). Cash inflows arise from operating income and financial sources.

A cumulative cash flow is the sum of the cumulative cash flow of the previous year and the net cash flow in the calculation year. In the first and second years of the project, the cumulative and net cash flows have an equal value, and in each subsequent year, the net cash flow from the previous year is increased by the net cash flow of the following year in order to obtain the cumulative cash flow. In the event the net cash flow in a given year is negative, the financial viability of the project is not brought into question if the cumulative cash flow in that year is positive.

Table 5 Financial sustainability (in 000 euros, current prices)

	Cash costs	Years					
		1	2	3	4	5	6
1.	Total financial sources	10,000	2,300	0	1,300	0	0
2.	Total operating income	0	1,900	4,800	5,520	5,680	6,000
A	Total cash inflows (1 + 2)	**10,000**	**4,200**	**4,800**	**6,820**	**5,680**	**6,000**
3.	Total operating expenses	0	-2,050	-2,430	-2,620	-2,780	-2.900
4.	Total investment	-5,670	-380	-1,210	-330	-1,370	-300
5.	Interest	0	0	-5	-5	-5	-5
6.	Debt principal repayment	0	0	-30	-30	-30	-30
7.	Taxes	0	-200	-400	-480	-500	-550
B	Total cash outflows (3 + 4 + 5 + 6 + 7)	**-5,670**	**-2,630**	**-4,075**	**-3,465**	**-4,685**	**-3,785**
	Net cash flow (A-B)	**4,330**	**1,570**	**725**	**3,355**	**995**	**2,215**
	Cumulative cash flow	**4,330**	**5,900**	**6,625**	**9,980**	**10,975**	**13,190**

2. THE ECONOMIC ANALYSIS OF THE PROJECT PROFITABILITY

2.1. Conversion of Market Prices to Accounting Prices

Determining the social value of a project can only be performed based on cost-benefit analysis. In this analysis, however, the distorted market prices of products and services cannot be used, but the total costs and benefits incurred are converted into accounting (socially acceptable) prices by using the social discount rate. Thus, the reality of economic analysis is achieved. Conversion to billing prices is performed in two manners:

1. Instead of the market-formed exchange rate of the domestic currency, the accounting exchange rate should be used. This is due to the fact that, in a country with a non-convertible currency, the exchange rate of domestic

money is usually depreciated or depressed, so the costs and benefits of the project are unrealistically expressed.

2. By introducing a conversion factor (European Commission, 2008), by means of which the harmonization of the existing administrative and market prices with billing prices is achieved by using a standard (general) or sectoral conversion factor in economic analysis. It depends on the character of the product:

a) In the domestic market, the products bought and sold can be classified into the basic and accompanying products. The standard conversion factor (StCF) is used for the conversion of market and administrative prices into accounting prices for ancillary products, and the sector conversion factor (SeCF) is used for the basic products.

For the countries belonging to the EU, StCF is calculated based on data on the foreign trade of a country in the previous year. The following example provides data in millions of euros:

Total imports (U)	l0,000
Total exports (I)	12,000
Import duties (Tu)	3,000
Export taxes (Ti)	600

$$\text{StCF} = \frac{U + I}{(U + Tu) + (I - Ti)} = 0.90 \qquad (2)$$

This example represents a simplified procedure for calculating the StCF because, in addition to taxes when importing goods, the other barriers that a country applies in exports and imports should be taken into account. In case no conversion factors are determined, the adjustment of the current prices is performed by using alternative solutions.

b) Economic analysis uses marginal prices, commonly called the CIF and FOB values for the products imported to be sold on the domestic market and for exported products. These are the import and export prices of goods adjusted for the amount of insurance and transportation costs, which are borne by the importer or the exporter.

In the EU countries, SeCF is designated by line ministries in the way that reflects the specifics of the industry which the project belongs to. In some production branches, current prices differ more or less from the calculated prices, depending on the market situation and the goals of the macroeconomic policy. Given that fact, the

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ministries of the EU countries determine the sectoral (branch) conversion factors for the key cost items: the depreciation of equipment, employees' salaries, costs of material costs and so on. By applying SeCF, the conversion of costs (expressed in current prices) into accounting prices is achieved, by which the reality of the project evaluation is achieved.

When performing an economic analysis, the costs of all the factors of production should be included together with income from the project. Certain costs are excluded from analysis so that the results of the analysis cannot lead to a wrong conclusion. These are: (Cupic M., 2009)

a) subsidies, which represent a pure social transfer and as such are excluded from economic analysis.

b) the value added tax (VAT) paid by end customers (consumers). From that tax, the state will finance the projects that are beneficial for society as a whole. In that way, the transfer of funds is carried out, first from the consumer to the state, and after that, from the state to consumers.

c) previous costs incurred before the project evaluation.

However, the rule on the exclusion of taxes and subsidies does not apply to all the projects. There is a project in whose economic analysis they should be included. For example, the negative impact of a project on the environment should be included in the following two ways: 1) by including taxes in the form of the social costs necessary to eliminate the consequences of pollution, and 2) by installing environmental equipment and including social costs. This is because the state prescribes standards for companies on the maximum amount of harmful substances.

2.2. The Monetization of Nonmarket and Indirect Influences

In addition to direct effects, the indirect effects of a project should be included in economic analysis. Financial analysis includes the financial effects of the project that are market-valued through the monetary amounts of estimated costs and the expected revenues of the company. In contrast, economic analysis includes the project impacts that are not valorized in the market and that are relevant to society as a whole. Direct effects in the form of costs and benefits relate to meeting project objectives, whereas indirect effects are the indirect effects arisen as a result of the project implementation. For example, indirect effects arise from the construction of an accumulation lake, thus relating to the long-term solution to the problems with drinking water. Indirect effects include the improvement of the living conditions of a city's population. However, there is a possibility of the double inclusion of indirect effects: independently, the first time, and within the price of direct effects, the second time. Indirect effects will not be included in economic analysis if they are included in

the accounting price of direct effects (costs and benefits) or if external effects are monetized.

The external effects (i.e. externalities) brought about by a project should be included in the analysis of its economic viability. External effects include the damages (negative external effects) and the benefits (positive external effects) that arise due to the activities performed by other companies or individuals that affect society as a whole. (Petrovic, Petrovic, 2013) An example of a negative external effect is water and air pollution due to the discharge of dirty water or smoke, and positive externalities include reducing the risk of floods as a result of the project to build a drainage channel network.

2.3. Discounting Estimated Costs and Benefits

For the purposes of financial analysis, a financial discount rate is the minimum rate of return, below which a project becomes financially unprofitable. Measurable (market) effects are important for financial analysis. For the needs of economic analysis, a social discount rate is used, which represents the minimum rate of return acceptable for the entire society, i.e. the rate below which a project becomes economically unjustified. (Florio, Vignetti, 2003) Measurable (market) effects and immeasurable (nonmarket) effects are relevant for economic analysis.

The financial discount rate is determined based on the market prices formed in the conditions of perfect competition. However, it is rare for products and services to be sold in the conditions of perfect competition. Today, there is no country that can be claimed to have perfect competition in the sale of all types of products. Due to market inefficiencies, market prices are often not in line with social value, so consumers are forced to buy products and services at market prices rather than at their real value. Based on that, the costs and benefits determined based on distorted market prices are not relevant from the point of view of society as a whole. In addition, prices for public services are administratively controlled and are set at a lower level than the costs of service provision in order to preserve the living standard of citizens. (Ilic, 2017) Precisely because of that, economic analysis uses accounting prices as socially acceptable prices, instead of market prices.

Economic analysis is aimed at determining the economic justification for a project. The effects of a project, i.e. the costs and benefits incurred in different time periods, should be discounted by using the social discount rate and should be reduced to the first year of the project planning period. The social discount rate may be equal to the financial discount rate, but it does not have to. Most authors believe that, in the analysis of public projects, the social discount rate should be determined based on the rate of interest on long-term loans, because these projects are implemented over a longer period of time.

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2.4. The Calculation of the Indicators of the Economic (Social) Return of the Project

The economic analysis indicator, the economic net present value of cash flows (economic) – NPV (e), differs from the financial net present value of cash flows (financial) – NPV (f), as an indicator of financial analysis. (Ðedovic, 2010)

In the case of the economic net present value, cash inflows consist of positive externalities expressed in monetary terms by using some of the possible monetization approaches and converted operating income. Cash outflows include negative externalities expressed in monetary terms (monetized), converted operating expenses and total investments. By using an appropriate conversion factor, the conversion of operating income and operating expenses is performed, which is presented in Table 6.

Table 6 The overview of the cash inflows and outflows (in 000 euros)

CASH FLOWS		Conversion factors (CF)	Years					
			1	2	3	4	5	6
1.	Reduction of water pollution		0	50	50	50	50	50
2.	Reduction of air pollution		0	20	20	20	20	20
A	Positive external effects (1 + 2)		0	70	70	70	70	70
3.	Revenues from sales of products	1.4	0	2,240	6,720	7,000	7,000	8,400
4.	Revenues from activating products for own needs	1.1	0	330	0	572	748	0
B	Total operating income (3 + 4)		0	2,570	6,720	7,572	7,748	8,400
5.	Noise increase		0	-20	-20	-20	-20	-20
C	Negative externalities (5)		0	-20	-20	-20	-20	-20
6.	Cost of materials	1.3	0	-1,040	-1,131	-1,170	-1,235	-1,300
7.	Costs of earnings	1.2	0	-720	-840	-960	-1,020	-1,020
8.	Costs of sale and costs of administration	0.9	0	-585	-774	-828	-882	-945
D	Total business expenses (6 + 7 + 8)		0	-2,345	2,745	-2,958	3,137	-3,265
E	Total investment	0.8	-4,536	-304	-968	-264	-1,096	-240
Net cash flow (A + B-C-D-E)			-4,536	-29	3,057	4,400	3,565	4,945

Economic analysis examines the economic (social) viability of the project for the whole society, including the profitability of the project owner himself. Therefore, the calculation of NPV (e) is made based on the calculated prices of all the effects (impacts) the project brings with itself. Thus, NPV (e) is not formed based on the distorted current prices (used to calculate NPV (e)), but based on the calculated, i.e. adjusted current prices instead).

CONCLUSION

A decision to close the financial structure or provide a partial financial support to a public project is made by potential investors based on cost-benefit analysis. Cost-benefit analysis is a comprehensive analysis for the evaluation and assessment of the acceptability of public investment projects. It provides an analytical basis for the selection of the most favorable investment alternative by counteracting inflows and outflows when making a decision on accepting those capital projects. This analysis investigates the financial viability of a project from the point of view of its owner (investor) and society as a whole. The answer to the first question is obtained by conducting a financial analysis, unlike an economic analysis which gives an answer to the question of the overall economic (social) profitability of a project, i.e. the benefits and harms that the project brings to society as a whole, including the investor. Therefore, economic analysis takes into account all the identified external effects of a project and is conducted adhering to a certain procedure in order to obtain an indicator of the economic viability of the project. In the first phase, the conversion (translation) of market-formed and administratively regulated prices into accounting prices is made. In the second phase, the monetization of the nonmarket impacts of the project is analyzed. In the third phase, the additional indirect impacts of the project are included in economic analysis. After that, the estimated costs and benefits are discounted in the fourth phase. Finally, the economic return indicator of the project is calculated in the fifth phase. Based on that, following the already performed theoretical consideration of financial analysis and then economic analysis as well, the financial and economic analyses of the project are respectively conducted in the paper. Within this framework, the profitability of the project is considered by applying cost-benefit analysis, which indicates to the investor whether the project is financially and economically viable for the whole society or not. After that, if the cost-benefit analysis as a comprehensive criterion confirms that inflows will exceed the investments made, the investor will provide the funds sufficient for him to start the process of the physical implementation of the project. A justification for such investments is best shown by cost-benefit analysis, because it looks at the project from a social point of view and sees the total contribution that those projects make to society as a whole, which is the reason why it is a procedure indispensable in the assessment of the implementation of investment projects.

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