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COST-BENEFIT ANALYSIS: BASIC TOOL IN MAKING DECISIONS RELATED TO INVESTMENT PROJECTS

Magdalena DĂNESCU (DUTA), PhD
"Valahia" University of Târgoviște
magdalena@danescu.eu

Abstract: *The scientific approach aims to address the value of cost-benefit analysis of an investment project, namely environmental equipment and machinery to reduce the "environmental footprint" of the company. The approach was made in view of the opportunity for SMEs to access non-reimbursable external financing provided by the EU, under the conditions of ensuring their own co-financing/ contribution from borrowed sources. Through this analysis, the hypothesis was validated according to which the need for financing of SMEs and especially of grants, demonstrates the reactivity of the public administration to their needs.*

Keywords: *cost-benefit analysis, tangible fixed assets, SMEs, non-reimbursable financing, investments*

JEL Classification*: M41, G32*

1. Introduction

Cost-benefit analysis is a key tool in the investment decision-making, especially when there is the availability of non-reimbursable external financing for EU countries. In Romania, SMEs still need investments in the field of environmental protection, which will reduce the ecological footprint of the activity they carry out and create added value both for them and for the community in which they operate.

The cost-benefit analysis helps both to identify the investment projects needed by SMEs in the current global context, respectively in ecological equipment and machinery, in equipment and apparatus in the field of digitization, and to identify the social benefits they will generate as a result of their achieving/implementation.

All these investments to reduce the environmental footprint are specific investments for sustainable development for which a cost-benefit analysis is needed, which considers both the direct effects for SMEs and the indirect effects on all activities in a given area, region and in particular on job creation.

To perform the cost-benefit analysis, it is necessary to go through a series of steps, namely defining objectives, project identification, options and feasibility analysis, financial analysis, economic analysis, multi-criteria analysis, risk analysis and sensitivity analysis.

Based on professional experience, the feasibility of an ecological investment project is not limited only to aspects of environmental protection and information technology, engineering, but also includes aspects of marketing, management, and implementation analysis.

2. Literature review

In the case of SMEs, the proposal to improve the provision of financial information, including those related to the cost-benefit ratio, consists in applying the European Commission's (2019) recommendations on the use of common methods of measuring environmental performance, "adapted" to the culture of Romanian enterprises, so that the environmental impact of a product/ good/service/work during the life cycle, as well as the environmental impact of an enterprise is achieved through environmental footprint methods. (The product environmental footprint method is known as the PEF method, and the enterprise environmental footprint method is known as the OEF method.)

With the help of financial information quantified in SME accounting and communicated externally through financial statements to end-users/ stakeholders, the measurement of the environmental footprint of a product/ good/service/work must necessarily consider all activities in the supply chain, respectively from the procurement/ purchase of raw materials, materials, fuels to the stages related to their production/consumption process, to the stage of management/recycling of waste resulting from the production process. (The supply chain is found in the economic literature under the name of value chain, but for the topic of scientific research this name was used.)

Speaking of the "environmental performance" of an SME, we are actually talking about sustainable development and social responsibility because they are in a relationship of interdependence.

With the help of financial information reflected in SME accounting, the effort to achieve "environmental performance" is found in the activity of SMEs by using energy/fuels from renewable sources instead of energy/fuels

from non-renewable sources, secondary materials, biodegradable, disposal of hazardous waste, use of fresh water resources, ecological equipment and machinery, recycling of materials resulting from production/services/works.

3. Research methodology

The applied research methodology used the longitudinal study of deductive nature based on the qualitative analysis of the reported information, available in both financial and non-financial reporting, components of the financial statements of SMEs.

The non-participatory observation, which involves the researcher's position outside the observed system, was made from the perspective of the evolution of scientific knowledge in the specific theoretical area and national, European, and international regulations applicable to SMEs (Chelcea, 2014).

The case study was used as an *"empirical investigation that investigates a contemporary phenomenon in its real-life context, especially when the boundaries between the phenomenon and the context are not very well defined"* (Yin R.K., 2005, page 30 quoted in Ristea & Franc 2009).

4. Financial analysis of an investment project, in the case of SMEs

The financial analysis of a green investment project aims to use the project's cash flow forecasts to calculate the appropriate rates of return, in particular the internal financial rate of return of investment (IFRR/C) or capital (IFRR/K) and the net financial present value (NFPV/C).

The internal financial rate of return of investment (IFRR/C) is defined as the interest rate, leading to zero the net present value of the investment and is calculated on the basis of the following ratio:

$$VAN = 0 \Leftrightarrow \sum_{i=1}^{n} \frac{CF_i}{(1+RIR)^i} + \frac{VR}{(1+RIR)^n} - I \quad (1)$$

Where: CF - annual cash flows, VR - Residual value, I - initial investment and n - project life.

The economic analysis evaluates the contribution of the green investment project to the economic well-being of the area and starts from the data of the financial analysis, which shows the performance of the investment,

regardless of financing sources: reimbursable financing for the SME's own contribution, respectively the part of the co-financing and non-reimbursable financing granted by the EU under the programs related to the financial framework 2014-2020 and the financial framework 2021-2027.

The economic analysis of an ecological investment of an SME from non-reimbursable external funds, by defining the appropriate conversion factors, for each of the items of inflow or outflow, defines the social costs and benefits, which were not taken into account in the financial analysis.

In conclusion, the economic analysis considers externalities, namely environmental impact or redistributive effects.

In the analysed case, the SME wants to implement the project with its own sources insured from the bank loan with market interest and non-reimbursable financial assistance. The ecological equipment and machinery to be purchased through the project will be used to carry out the activity in order to reduce the ecological footprint.

The starting point is that any investor / entrepreneur who manages the activity of an SME wants an increase / development of production capacity at European standards, as it is the premise of increasing competitiveness and a positive evolution in the medium and long term.

In this context, in the case of the analysed SME, it started from an investment value of 13,156,518.62 lei without VAT, of which the SME contribution represents 68.55% of the total investment value (the amount of 9,018,619.36 lei) and the non-reimbursable financial aid represents 31.50% of the total investment (the amount of 4,137,899.26 lei).

The sources of financing of the project, including the non-reimbursable financial aid (FEN) are presented in table no.1, as follows:

Table no.1. Sources of investment project financing

Sources of funding **Ecological equipment and machinery**	**Value** **-lei-**
Total value of the green investment project	13,156,518.62
Ineligible value of the green investment project	4,864,135.34
Eligible value of the green investment project	8,292,383.28
Non-reimbursable financial aid from FEN	4,137,899.26
FEN applicant's contribution	9,018,619.36
Contribution from own funds to SMEs	-
SME contribution from repayable sources, respectively bank loan on the banking market	9,018,619.36

Source: own processing

The analysis horizon of such an investment project in ecological equipment and machinery to reduce the ecological footprint is 10 years, at a discount rate of 5%, in which year 0 is considered the reference year of the project and year 1 is the year in which the project will generate financial and economic results. The main indicators of the financial analysis, as previously mentioned, for the investment project proposed above, are: Internal Financial Rate of Return (IFRR/C), Net Financial Present Value (NFPV) related to the investment and Benefit/Cost ratio (B/C).

The sustainability of the project was exemplified in terms of the specificity and nature of this investment in ecological equipment and machinery, by quantifying the net cumulative cash flow generated by the investment, related to the time horizon of 10 years.

In terms of financial costs and revenues, the indicators related to the financial analysis were determined in the tables below.

The financial analysis first involves determining the revenues and operating and maintenance costs related to the implementation of such a project that would lead to the development of the SME business. In this sense, in table no.2 is presented on a horizon of 10 years, the revenues and operating and maintenance costs through the implementation of the investment project, representing investments in ecological equipment and machinery:

Table no.2. Operating and maintenance costs of investment & Operating revenues

Name of articles of revenues and expenses expressed in lei	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Raw materials and consumables	773,470	788,939	804,718	820,813	837,229
Electricity, natural gas	442,597	451,449	460,478	469,687	479,081
Water, sewerage, sanitation	128,912	131,490	134,120	136,802	139,538
Workforce	8,230,738	8,477,660	8,731,990	8,993,950	9,263,768
Other operating expenses	322,279	328,725	335,299	342,005	348,845
Equipment maintenance	537,133	601,589	673,780	754,633	845,189
Total operating and maintenance costs	**10,435,129**	**10,779,852**	**11,140,385**	**11,517,890**	**11,913,651**
Sales revenue - production sold	11,357,643	11,925,525	12,521,801	13,147,891	13,805,286
Other operating revenues	176,740	178,507	180,292	182,095	183,916
Total operating revenue	**11,534,383**	**12,104,033**	**12,702,094**	**13,329,987**	**13,989,202**

Source: own processing

Table no.2. Operating and maintenance costs of investment & operating revenues - continued

Name of articles of revenues and expenses expressed in lei	Year 6	Year 7	Year 8	Year 9	Year 10
Raw materials and consumables	845,601	854,057	862,598	871,224	879,936
Electricity, natural gas	483,872	488,711	493,598	498,534	503,519
Water, sewerage, sanitation	140,934	142,343	143,767	145,204	146,656
Workforce	9,449,043	9,638,024	9,830,785	10,027,401	10,227,949
Other operating expenses	352,334	355,857	359,416	363,010	366,640
Equipment maintenance	946,612	1,060,205	1,187,430	1,329,922	1,489,512
Total operating and maintenance costs	**12,218,396**	**12,539,198**	**12,877,592**	**13,235,294**	**13,614,212**
Sales revenue - production sold	14,495,550	14,785,461	15,081,171	15,382,794	15,690,450
Other operating revenues	185,756	187,613	189,489	191,384	193,298
Total operating revenue	**14,681,306**	**14,973,074**	**15,270,660**	**15,574,178**	**15,883,748**

Source: own processing

To perform the financial analysis of the investment project by determining the specific indicators, table no. 3 presents their calculated values, respectively the internal rate of financial profitability and the updated net financial revenue, as follows:

Table no. 3. Internal financial rate of return and net financial present value of the investment

INDICATORS	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Sales revenue	0.00	11,357,643.00	11,925,525.15	12,521,801.41	13,147,891.48	13,805,286.05
Other operating revenues	0.00	176,740.00	178,507.40	180,292.47	182,095.40	183,916.35
Other revenue related to the activity	0.00	0.00	0.00	0.00	0.00	0.00
Residual value	0.00	0.00	0.00	0.00	0.00	0.00
Total revenue	**0.00**	**11,534,383.00**	**12,104,032.55**	**12,702,093.88**	**13,329,986.88**	**13,989,202.40**
Total operating and maintenance costs	0.00	10,435,129.00	10,779,852.26	11,140,384.80	11,517,890.36	11,913,650.98
Total costs with bank loan repayment	0.00	665,151.00	448,019.00	395,568.00	343,117.00	245,864.00
Other loan costs	0.00	91,785.00	70,397.00	62,074.00	53,751.00	45,055.00
Total investment costs	**13,156,518.62**					

Total expenses	**13,156,518.62**	**11,192,065.00**	**11,298,268.26**	**11,598,026.80**	**11,914,758.36**	**12,204,569.98**
Operating net cash flow	**-13,156,518.62**	**342,318.00**	**805,764.29**	**1,104,067.08**	**1,415,228.52**	**1,784,632.42**
5% discount rate	1.0000	0.9524	0.9070	0.8638	0.8227	0.7835
Updated net cash flow	**-13,156,518.62**	**326,023.66**	**730,828.21**	**953,693.14**	**1,164,308.50**	**1,398,259.50**
IFRR/C = 3.96471%						
NFPV/C = - 806,232.24						

Source: own processing

Table no. 3. Internal financial rate of return and net financial present value of the investment – continued

INDICATORS	Year 6	Year 7	Year 8	Year 9	Year 10
Sales revenue	14,495,550.35	14,785,461.36	15,081,170.59	15,382,794.00	15,690,449.88
Other operating revenues	185,755.52	187,613.07	189,489.20	191,384.09	193,297.94
Other revenue related to the activity	0.00	0.00	0.00	0.00	0,00
Residual value	0.00	0.00	0.00	0.00	436,602.00
Total revenue	**14,681,305.87**	**14,973,074.43**	**15,270,659.79**	**15,574,178.09**	**16,320,349.82**
Total operating and maintenance costs	12,218,395.98	12,539,197.69	12,877,592.49	13,235,293.56	13,614,211.87
Total costs with bank loan repayment	246,957.00	194,506.00	142,055.00	89,604.00	38,243.00
Other loan costs	38,493.00	30,170.00	21,847.00	13,525.00	8,819.00
Total investment costs					
Total expenses	**12,503,845.98**	**12,763,873.69**	**13,041,494,49**	**13,338,422.56**	**13,661,273.87**
Operating net cash flow	**2,177,459.89**	**2,209,200.75**	**2,229,165.30**	**2,235,755.54**	**2,659,075.95**
5% discount rate	0.7462	0.7107	0.6768	0.6446	0.6139
Updated net cash flow	**1,624,820.57**	**1,570,078.97**	**1,508,699.08**	**1,441,168.02**	**1,632,406.73**
IFRR/C = 3.96471%					
NFPV/C = - 806,232.24					

Source: own processing

The analysis of the information on the return on investment with non-reimbursable financing resulted in the following conclusions:

- Internal Financial Rate of Return of Investment = IFRR/C = 3.96471% <5%, which means that, at a discount rate of 5%, the internal financial rate of return on investment cost is below the discount rate; this also reveals and justifies the need and economic opportunity for non-reimbursable funding from EU sources;

- Net Financial Present Value = NFPV/C = - 806,232.24 lei and justifies the non-reimbursable financial intervention attracted as financing for the implementation of the project.

Next, in table no. 4, the financial indicators related to the profitability of the own contribution insured from the bank loan were determined, as follows:

Table no. 4. Internal financial rate of return and net financial present value of own contribution

INDICATORS	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Income	0.00	11,534,383.00	12,104,032.55	12,702,093.88	13,329,986.88	13,989,202.40
Residual value	0.00	0.00	0.00	0.00	0.00	0.00
Total revenue	**0.00**	**11,534,383.00**	**12,104,032.55**	**12,702,093.88**	**13,329,986.88**	**13,989,202.40**
Total operating and maintenance costs	0.00	10,435,129.00	10,779,852.26	11,140,384.80	11,517,890.36	11,913,650.98
Interest rate	0.00	665,151,00	448,019,00	395,568,00	343,117,00	245,864,00
Fees, loan fees	**0.00**	**91,785.00**	**70,397.00**	**62,074.00**	**53,751.00**	**45,055.00**
National contribution	0.00	0.00	0.00	0.00	0.00	0.00
Own contribution	**9,018,619.36**	0.00	0.00	0.00	0.00	0.00
Total expenses	**9,018,619.36**	**11,192,065.00**	**11,298,268.26**	**11,598,026.80**	**11,914,758.36**	**12,204,569.98**
Net cash flow	**-9,018,619.36**	**342,318.00**	**805,764.29**	**1,104,067.08**	**1,415,228.52**	**1,784,632.42**
5% discount rate	1.0000	0.9524	0.9070	0.8638	0.8227	0.7835
Updated net cash flow	**-9,018,619.36**	**326,023.66**	**730,828.21**	**953,693.14**	**1,164,308.50**	**1,398,259.50**
IFRR/K = 8,6005%						
NFPV/K =2.007.881,54						

Source: own processing

Table no.4. Internal financial rate of return and net financial present value of own contribution – continued

INDICATORS	Year 6	Year 7	Year 8	Year 9	Year 10
Income	14,681,305.87	14,973,074.43	15,270,659.79	15,574,178.09	15,883,747.82
Residual value	0.00	0.00	0.00	0.00	436,602.00
Total revenue	**14,681,305.87**	**14,973,074.43**	**15,270,659.79**	**15,574,178.09**	**16,320,349.82**
Total operating and maintenance costs	12,336,389.34	12,786,662.32	13,267,574.35	13,782,665.27	14,335,974.74
Interest rate	246,957.00	194,506.00	142,055.00	89,604.00	38,243.00
Fees, loan fees	**38,493.00**	**30,170.00**	**21,847.00**	**13,525.00**	**8,819.00**
National contribution	0.00	0.00	0.00	0.00	0.00
Own contribution	0.00	0.00	0.00	0.00	0.00
Total expenses	**12,621,839.34**	**13,011,338.32**	**13,431,476.35**	**13,885,794.27**	**14,383,036.74**

Net cash flow	**2,059,466.53**	**1,961,736,12**	**1,839,183.44**	**1,688,383.82**	**1,937,313.08**
5% discount rate	0.7462	0.7107	0.6768	0.6446	0.6139
Updated net cash flow	**1,536,773.92**	**1,394,205.86**	**1,244,759.36**	**1,088,332.21**	**1,189,316.50**
IFRR/K = 8.6005%					
NFPV/K =2,007,881.54					

Source: own processing

The data in table no. 4 show that the investment in such a project, even with reimbursable co-financing, is justified by the determined profitability indicators, respectively:

- Internal Financial Rate of Return of the own contribution = IFRR/K= 8.60% represents an internal financial rate of return of the own contribution which is below the threshold of 10%, which reveals and justifies, at the same time, the necessity and economic opportunity of financing such an investment project;
- Net Financial Present Value NFPV/K = 2,007,881.54 lei generated by the project.

The determination of the investment benefits/costs ratio is presented in table no. 5 based on the previously mentioned data, as follows:

Table no. 5. Benefits/costs ratio

INDICATORS	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Total costs	13,156,518.62	11,192,065.00	11,298,268.26	11,598,026.80	11,914,758.36	12,204,569.98
Update rate 5%	1.0000	0.9524	0.9070	0.8638	0.8227	0.7835
Total updated costs = 107,659,040.05	**13,156,518.62**	**10,659,322.71**	**10,247,529.31**	**10,018,375.55**	**9,802,271.70**	**9,562,280.58**
Total revenue	0.00	11,534,383.00	12,104,032.55	12,702,093.88	13,329,986.88	13,989,202.40
Update rate 5%	1.0000	0.9524	0.9070	0.8638	0.8227	0.7835
Total updated revenue = 106,852,807.81	**0.00**	**10,985,346.37**	**10,978,357.52**	**10,972,068.69**	**10,966,580.20**	**10,960,540.08**
BENEFIT/ COST RATIO = 0.9925						
Net updated value = -806,232.24						

Source: own processing

Table no.5. Benefits/costs ratio - continued

INDICATORS	Year 6	Year 7	Year 8	Year 9	Year 10
Total costs	12,503,845.98	12,763,873.69	13,041,494.49	13,338,422.56	13,661,273.87
Update rate 5%	0.7462	0.7107	0.6768	0.6446	0.6139
Total updated costs = 107,659,040.05	**9,330,369.87**	**9,071,285.03**	**8,826,483.47**	**8,597,947.18**	**8,386,656.03**
Total revenue	14,681,305.87	14,973,074.43	15,270,659.79	15,574,178.09	16,320,349.82
Update rate 5%	0.7462	0.7107	0.6768	0.6446	0.6139
Total updated revenue = 106,852,807.81	**10,955,190.44**	**10,641,364.00**	**10,335,182.55**	**10,039,115.20**	**10,019,062.75**
BENEFIT / COST RATIO = 0.9925					
Net updated value = -806,232.24					

Source: own processing

The results obtained because of determining the benefit/cost ratio related to the investment project demonstrate the need for the non-reimbursable financial intervention that an SME must capitalize during the financial framework 2021-2027 by making available to Romania by the EU programs with non-reimbursable financing development of the SME sector.

The sustainability of such an investment project that corresponds to sustainable development because it contributes to reducing the ecological footprint of SME activity, is demonstrated by determining the cumulative net cash flow generated by the project, as shown in Table no. 6:

Table no. 6. Financial sustainability of the project

INDICATORS	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Total financial resources	13,156,518.62	0.00	0.00	0.00	0.00	0.00
Total revenue	0.00	11,534,383.00	12,104,032.55	12,702,093.88	13,329,986.88	13,989,202.40
Total cash inflows	**13,156,518.62**	**11,534,383.00**	**12,104,032.55**	**12,702,093.88**	**13,329,986.88**	**13,989,202.40**
Total operating and maintenance costs	0.00	10,435,129.00	10,779,852.26	11,140,384.80	11,517,890.36	11,913,650.98
Total investment costs	13,156,518.62	0.00	0.00	0.00	0.00	0.00
Interest	0.00	665,151.00	448,019.00	395,568.00	343,117.00	245,864.00
Loan repayment	0.00	201,861.94	401,861.94	901,861.94	901,861.94	901,861.94
Fees, loan fees	0.00	91,785.00	70,397.00	62,074.00	53,751.00	45,055.00
Total cash outflows	**13,156,518.62**	**11,393,926.94**	**11,700,130.20**	**12,499,888.74**	**12,816,620.30**	**13,106,431.92**
Total cash flow	**0.00**	**140,456.06**	**403,902.35**	**202,205.14**	**513,366.58**	**882,770.48**
Cumulative cash flow	**0.00**	**140,456.06**	**544,358.41**	**746,563.55**	**1,259,930.12**	**2,142,700.60**

Source: own processing

Table no. 6. Financial sustainability of the project – continued

INDICATORS	Year 6	Year 7	Year 8	Year 9	Year 10
Total financial resources	0.00	0.00	0.00	0.00	0.00
Total revenue	14,681,305.87	14,973,074.43	15,270,659.79	15,574,178.09	16,320,349.82
Total cash inflows	**14,681,305.87**	**14,973,074.43**	**15,270,659.79**	**15,574,178.09**	**16,320,349.82**
Total operating and maintenance costs	12,218,395.98	12,539,197.69	12,877,592.49	13,235,293.56	13,614,211.87
Total investment costs	0.00	0.00	0.00	0.00	0.00
Interest	246,957.00	194,506.00	142,055.00	89,604.00	38,243.00
Loan repayment	901,861.94	901,861.94	1,201,861.94	1,301,861.94	1,401,861.90
Fees, loan fees	38,493.00	30,170.00	21,847.00	13,525.00	8,819.00
Total cash outflows	**13,405,707.92**	**13,665,735.63**	**14,243,356.43**	**14,640,284.50**	**15,063,135.77**
Total cash flow	**1,275,597.95**	**1,307,338.81**	**1,027,303.36**	**933,893.60**	**1,257,214.05**
Cumulative cash flow	**3,418,298.55**	**4,725,637.36**	**5,752,940.72**	**6,686,834.32**	**7,944,048.37**

Source: own processing

In conclusion, the financial sustainability of the project is verified by obtaining a positive cumulative net cash flow from year to year. Investment costs were included as output flow, while non-reimbursable financing and own contribution from reimbursable sources were included as input flow, accounted for as a financial resource.

This case demonstrated the profitability of such an investment project that aligns with the requirements of sustainable development and social responsibility, by using the opportunities offered by non-reimbursable financial resources provided by Romania by the EU for the development of the SME sector in the financial framework 2014-2020 and the financial framework 2021-2027.

5. Sensitivity analysis of the investment project

For the investment project in ecological equipment and machinery, we started from the premise that, out of the total elements related to the project, two are the most sensitive elements and with higher probability of manifestation, as forms of risk of the project, namely:

- increase of operating and maintenance costs by 3% at the same level of revenues, scenario presented in detail in the data in table no. 7 below;
- Reduction of revenues by 3% compared to the projected situation at the same level of costs, scenario presented in detail in the data in table no. 8 below.

These scenarios demonstrate the sensitivity of the project both in the case of the variable *"costs higher by 3% at the same level of revenue"* and in the case of the variable *"lower revenue by 3% at the same level of costs"*, the values of the calculated indicators show these aspects, the nature of tangible assets that diminish the ecological footprint as an opportunity for SMEs.

In the scenario *"costs higher by 3% at the same level of revenue"*, the financial indicators recorded the following values, as shown in table no. 7:

Table no. 7. Scenario "costs higher by 3% at the same level of revenue" - IFRR/C & NFPV/C

INDICATORS	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Sales income	0.00	11,357,643.00	11,925,525.15	12,521,801.41	13,147,891.48	13,805,286.05
Other operating revenues	0.00	176,740.00	178,507.40	180,292.47	182,095.40	183,916.35
Other revenues related to the activity	0.00	0.00	0.00	0.00	0.00	0.00
Residual value	0.00	0.00	0.00	0.00	0.00	0.00
Total revenue	**0.00**	**11,534,383.00**	**12,104,032.55**	**12,702,093.88**	**13,329,986.88**	**13,989,202.40**
INDICATORS	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Total operating and maintenance costs	0.00	10,748,182.87	11,103,247.83	11,474,596.35	11,863,427.07	12,271,060.51
Total costs with bank loan repayment	0.00	665,151.00	448,019.00	395,568.00	343,117.00	245,864.00
Other loan costs	0.00	91,785.00	70,397.00	62,074.0	53,751.00	45,055.00
Total investment costs	**13,156,518.62**					
Total expenses	**13,156,518,62**	**11,505,118.87**	**11,621,663.83**	**11,932,238.35**	**12,260,295.07**	**12,561,979.51**
Operating net cash flow	**-13,156,518.62**	**29,264.13**	**482,368.72**	**769,855.53**	**1,069,691.80**	**1,427,222.89**
Update rate 5%	1.0000	0.9524	0.9070	0.8638	0.8227	0.7835
Updated net cash flow	**-13,156,518.62**	**27,871.16**	**437,508.43**	**665,001.21**	**880,035.45**	**1,118,229.13**
IFRR/C = 0,12534%						
NFPV/C = -3,611,341,11						

Source: own processing

Table no. 7. Scenario "costs higher by 3% at the same level of revenue" - IFRR/C & NFPV/C - continued

INDICATORS	Year 6	Year 7	Year 8	Year 9	Year 10
Sales income	14,495,550.35	14,785,461.36	15,081,170.59	15,382,794.00	15,690,449.88
Other operating revenues	185,755.52	187,613.07	189,489.20	191,384.09	193,297.94
Other revenues related to the activity	0.00	0.00	0.00	0.00	0.00
Residual value	0.00	0.00	0.00	0.00	352,503.12
Total revenue	**14,681,305.87**	**14,973,074.43**	**15,270,659.79**	**15,574,178.09**	**16,236,250.94**
INDICATORS	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
Total operating and maintenance costs	12,584,947.86	12,915,373.62	13,263,920.26	13,632,352.36	14,022,638.22
Total costs with bank loan repayment	246,957.00	194,506.00	142,055.00	89,604.00	38,243.00
Other loan costs	38,493.00	30,170.00	21,847.00	13,525.00	8,819.00
Total investment costs					
Total expenses	**12,870,397.86**	**13,140,049.62**	**13,427,822.26**	**13,735,481.36**	**14,069,700.22**
Operating net cash flow	**1,810,908.01**	**1,833,024.82**	**1,842,837.53**	**1,838,696.73**	**2,166,550.71**
Update rate 5%	0.7462	0.7107	0.6768	0.6446	0.6139
Updated net cash flow	**1,351,299.55**	**1,302,730.74**	**1,247,232.44**	**1,185,223.91**	**1,330,045.48**
IFRR/C = 0.12534%					
NFPV/C = - 3,611,341.11					

Source: own processing

The above data also demonstrates in this scenario, once again, the need to finance such a project from non-reimbursable funds available from the EU for the SME sector that would lead to the development of their activity by making investments "friendly" to the nature and community in which they operate.

In the second scenario, respectively the scenario "*revenues lower by 3% at the same level of costs"*, the financial indicators recorded the following values, as shown in table no. 8:

Table no. 8. Scenario "revenues lower by 3% at the same level of costs" - IFRR/C & NFPV/C

INDICATORS	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Sales revenue	0.00	11,016,913.71	11,567,759.40	12,146,147.37	12,753,454.73	13,391,127.47
Other operating revenues	0.00	176,740.00	178,507.40	180,292.47	182,095.40	183,916,35
Other income related to the activity	0.00	0.00	0.00	0.00	0.00	0.00
Residual value	0.00	0.00	0.00	0.00	0.00	0.00

Total revenue	**0.00**	**11,193,653.71**	**11,746,266.80**	**12,326,439.84**	**12,935,550.13**	**13,575,043.82**
Total operating and maintenance costs	0.00	10,435,129.00	10,779,852.26	11,140,384.80	11,517,890.36	11,913,650.98
Total costs with bank loan repayment	0.00	665,151.00	448,019.00	395,568.00	343,117.00	245,864.00
Other loan costs	0.00	91,785.00	70,397.00	62,074.00	53,751.00	45,055.00
Total investment costs	**13,156,518.62**					
Total expenses	**13,156,518.62**	**11,192,065.00**	**11,298,268.26**	**11,598,026.80**	**11,914,758.36**	**12,204,569.98**
Operating net cash flow	**-13,156,518.62**	**1,588.71**	**447,998.54**	**728,413.04**	**1,020,791.77**	**1,370,473.84**
Update rate 5%	1,0000	0.9524	0.9070	0.8638	0.8227	0.7835
Updated net cash flow	**-13,156,518.62**	**1,513.09**	**406,334.67**	**629,203.18**	**839,805.39**	**1,073,766.25**
IFRR/C = - 0,48640%						
NFPV/C = -4,020,781,66						

Source: own processing

Table no. 8. Scenario "revenues lower by 3% at the same level of costs" - IFRR/C & NFPV/C - continued

INDICATORS	Year 6	Year 7	Year 8	Year 9	Year 10
Sales revenue	14,060,683.84	14,341,897.52	14,628,735.47	14,921,310.18	15,219,736.38
Other operating revenues	185,755.52	187,613.07	189,489.20	191,384.09	193,297.,94
Other income related to the activity	0.00	0.00	0.00	0.00	0.00
Residual value	0.00	0.00	0.00	0.00	339,405.06
Total revenue	**14,246,439.36**	**14,529,510.59**	**14,818,224.67**	**15,112,694.27**	**15,752,439.38**
Total operating and maintenance costs	12,218,395.98	12,539,197.69	12,877,592.49	13,235,293.56	13,614,211.87
Total costs with bank loan repayment	246,957.00	194,506.00	142,055.00	89,604.00	38,243.00
Other loan costs	38,493.00	30,170.00	21,847.00	13,525.00	8,819.00
Total investment costs					
Total expenses	**12,503,845.98**	**12,763,873.69**	**13,041,494.49**	**13,338,422.56**	**13,661,273.87**
Operating net cash flow	**1,742,593.38**	**1,765,636.91**	**1,776,730.18**	**1,774,271.72**	**2,091,165.51**
Update rate 5%	0.7462	0.7107	0.6768	0.6446	0.6139
Updated net cash flow	**1,300,323.18**	**1,254,838.15**	**1,202,490.99**	**1,143,695.55**	**1,283,766.51**
IFRR/C = - 0.48640%					
NFPV/C = -4,020,781.66					

Source: own processing

In the scenario *"revenues lower by 3% at the same level of costs*", the values of the calculated indicators, respectively IFRR/C and NFPV/C show the need and opportunity of such a project that generates medium and long term added value, in the sense of sustainable activities with a social impact.

Considering the risks stated above, as well as their influence on the indicators related to the investment, on a scale of +/- 10% variation, from the basic case, for each parameter, the result of the calculations is the one presented in Tables no. 9 and 10:

Table no. 9. Impact on the critical parameter "costs"

No.	Financial indicators related to green investment	Basic hypothesis	Increase costs by 3%	Deviation
1.	Internal Financial Rate of Return - IFRR/C	3.96471%	0.12534%	3.839337%
2.	Net Financial Present Value - NFPV/C	-806,232.24	-3,611,341.11	-2,805,108.87

Source: own processing

Table no.10. Impact on the critical parameter "revenues"

No.	Financial indicators related to green investment	Decrease in revenue by 3%	Basic hypothesis	Deviation
1.	Internal Financial Rate of Return - IFRR/C	-0,48640%	3,96471%	4,45111%
2.	Net Financial Present Value - NFPV/C	-4,020,781,06	-806,232,24	-3,214,548,82

Source: own processing

The sensitivity indicators reflect the values recorded both in the variant of reducing revenues by 3% compared to the projected situation at the same level of costs, and in the hypothesis of increasing costs by 3% at the same level of revenues, the fact that the investment project is stable from in terms of economic and social benefits, proving its usefulness and importance through the added value of SME activity in the medium and long term. The cost-benefit analysis of investment projects that meet the requirements of sustainable development and social responsibility with reimbursable financing & non-reimbursable financing on the hypothetical example demonstrated the importance of these projects for the economy, especially in the context of the global health crisis.

6. Conclusions

Cost-benefit analysis related to SME projects for investments in tangible fixed assets with non-reimbursable financing carried out by addressing both the financial analysis of an investment in environmentally friendly equipment and machinery, and the sensitivity analysis of such an investment project, demonstrated the importance of non-reimbursable financial intervention by public authorities for such an investment project.

The approach of the valences of the cost-benefit analysis of an investment project, respectively ecological equipment and machinery that would reduce the "environmental footprint" of the enterprise, highlighted that the need to finance SMEs and especially grants, demonstrates the reactivity of the public administration to their needs.

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