

# ASSESSMENT OF ECONOMIC AND FINANCIAL RISKS IN THE CASE OF THE INVESTMENT PROJECTS

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## **Abstract**

*This paper aims at an integrated approach of the risk concept and control of risk management techniques. Risk identification and classification starts in the planning stage and continues all through the project implementation process.*

*In this paper, I will focus on identifying, elaborating and assessing some economic and financial risks occurring in the implementation stage of an investment project. The first part of the paper addresses the theoretical aspects, while the second covers a brief study on assessing the economic and financial risks, which may derive from an environmental protection investment project.*

**Keywords:** *economic risk, financial risk, risk management*

**JEL Classification:** O<sub>44</sub>, Q<sub>5</sub>

## **Introduction**

Both borrowers and lenders, actors in project funding, must adopt a 5-step *risk management* programme covering the identification of the project financial objectives; identification of risk exposure sources; exposure degree quantification; assessment of risk exposure impact on the project strategy; and implementation of risk exposure reduction measures.

This is a control tool for any investment project and it involves maximising the impact of the positive events and minimising the effects of the negative events, which may occur during a project life cycle.

Risk management has developed gradually at conceptual, theoretical and practical levels, becoming a strong industry. Any powerful organisation has a risk management department, a risk strategy and must report on its risk coverage operations.

Financial risk management is usually specific to banks and financial institutions. Due to the nature of this activity, the projects are exposed differently to financial and economic risks. A proper risk management may lead to substantial profits, while a poor management may entail bankruptcy. The likelihood of a major failure and the huge demands of market regulators have led to considerable risk control-related expenses.

Everything or almost everything depends on the knowledge of the economic conditions, processes and trends.

## Literature review

According to the classical decision theory, *risk* is identified as *an uncertain yet possible event, which constantly occurs in the social and interpersonal relations, carrying damaging and irreversible effects* (Opran C., 2007). While the Explanatory Dictionary of the Romanian Language, Academiei Publishing House (DEX, 2008) reads risk as “the exposure to potential loss or damage”, the insurance companies define this element as “the hazard or possibility to lose” (DEX, 2008).

The advanced statistical theories in risk assessment bring a more complex definition: “*risk reflects the variations of potential outcomes dissemination, their probability and subjective values*” (Maniu A., Mitrut C., Voineagu V., 1999). In point of quantifying such risks, we further read that “*risk assessment is performed either by analysing the nonlinearities of money usefulness or by the variation of disseminating the probabilities of gains and losses for each particular choice*” (Maniu A., Mitrut C., Voineagu V., 1999).

Other risk defining versions are the chance to lose; the possibility to lose; the uncertainty affecting the outcome; current dissemination of expected outcomes; a multidimensional concept, which cannot be cut down to a single element, namely a figure.

Whereas the above-mentioned, we can notice the fact that specialist literature provides a wide range of definitions for *risk*, which will lead to the hypothesis (pertinent, for that matter) that different decision-makers will have different views regarding the same situation.

Under these circumstances, how can we have a unitary picture on risk if there are so many various approaches of the same concept? The answer lies precisely in the identification of the basic elements underlying all such definitions, namely *uncertainty (indefiniteness)* and *loss*.

To that end, we may say that the *uncertainty* concept is covered in all risk definitions, for its validation will always lead to two potential different outcomes. We will therefore consider that an event is *not subject to risk* if we know for sure a loss will occur, regardless of the context.

Immediate reality practically proves us that no assumed conscious process in any area of concern *rules out uncertainty*. On this background, we may conclude that risk and uncertainty meet in fact at any level, yet combined in different degrees.

Under exceptional circumstances, unforeseeable events may cause major deviations able to bring about significant changes, *uncertainty itself becoming a potential risk factor*.

Although used together in various situations, *risk* and *uncertainty cannot be mistaken one for the other*. There are a number of significant differences between the two concepts, the most important being that that “while in point of risk we can foresee the events and the probabilities of their occurrence, when we speak about *uncertainty*, the decision-maker cannot identify all or any potential events, much less foresee the probability of their occurrence” (Opran C., 2007).

Considering all of the above, we may define *risk* as an uncertain yet possible event, which constantly occurs in the technical, interpersonal, social and political sectors, reflecting the variations of the potential outcomes dissemination, the occurrence probability with the subjective and objective values and carrying potential damaging and irreversible effects.

Can we fight the negative effects of such events, which occur whether we like it, or not? Probably not entirely, but we can surely mitigate them. It has been proven in time that risk management is a prerequisite for a successful activity.

A project *risk management* covers those processes allowing risk identification, analysis (risk quantification, quantitative and qualitative assessment) and management (risk prevention, reduction, monitoring and control). “The active processes may be severely affected by hardly foreseeable or unforeseeable events.” (Pistol L., Ungureanu G., Ungureanu A., Vârgă A., page 25). This involves maximising the impact of the positive events and minimising the effects of the negative events, which may occur during a project life cycle.

### **Risk analysis steps and proper tools**

Risk management covers certain steps pertaining to risk identification, analysis and response involving risk identification, risk quantification and risk response development and control. Project risk includes the threats to objectives as well as the opportunities to improve such objectives.

An overview of a project risk management steps is provided in Table 1.

Table 1

#### **Project risk management steps – overview**

| Step 1 RISK IDENTIFICATION  |                                |   |
|---|--------------------------------|---|
| Inputs  | Tools                          | Outputs   |
| Project description   | Risk register<br>Brainstorming | Sources of risk<br>Inherent risk<br>Residual risk<br>Control tools<br>Recovery terms<br>Impact<br>Probability |
| Step 2 QUANTITATIVE AND QUALITATIVE RISK ASSESSMENT   |                                |   |
| Inputs  | Tools                          | Outputs   |
| Risk tolerance of the parties involved<br>Sources of risk<br>Potential risks<br>Cost estimate<br>Approximate project length | Risk matrix<br>Expert panel    | Opportunities to discover, threats to avoid<br>Opportunities to give up to, accepted threats                  |

| Step 3 RISK PREVENTION AND REDUCTION MEASURES                                   |  |  |
|---|--|--|
| Inputs  | Tools  | Outputs  |
| Opportunities to consider, threats to avoid                                     | Risk prevention plan<br>Insurance measures                           | Risk management planning<br>Contractual agreements |
| Step 4 RISK MONITORING AND CONTROL  |  |  |
| Inputs  | Tools  | Outputs  |
| Risk response plan<br>Communication<br>Identifying additional risks (new risks) | Check lists<br>Project audit<br>Risk monitoring and control strategy | Emergency plan<br>Corrective actions               |

Source: adaptation from Ioan Dan Filipoiu, Constantin Rânea, *Managementul proiectelor în dezvoltarea de produs*, Editura Politehnica press, București, 2009, p. 12

### **Typology of economic and financial risks: identification and interpretation**

Risk classification is particularly conducted by project risk managers. They usually develop the internal procedures of *risk assessment, risk response strategy development and risk monitoring and control*.

Risk identification and classification initiates in the planning stage and continues all through the project implementation process.

I will dwell on the economic and financial risks occurring in the investment project implementation stage.

A. The **financial risk** (Platon V., 2004) related to an environmental protection investment project is the probability that the investors are unable to assign the necessary funds to develop and complete the project according to the execution plan. The term covers several types of risks related to environmental protection investment projects, the main types being:

A.1. **The currency risk related to the imports necessary for the completion of the environmental protection investment projects** occurs solely when the project involves imports. This may entail non-performance of the project following the failure to import. In order to reduce such a risk, all sales contracts should cover the national currency and a pre-established price.

A.2. **The risk of increased purchase and processing costs of any kind of materials necessary for the completion of an environmental protection investment project**, triggered by *inflation* on an unstable market (in case of long-term projects this risk is important). The increase in the manufacturing costs and in the prices or raw materials and fuel may also be a consequence of the erosion of the purchasing power, thus leading to insufficient resources. Risk reduction measure: the introduction of a safety margin to the negotiated price as well as the introduction of a price review or adjustment contract clause.

**A.3. The risk of underfunding the environmental protection investment project** occurring when the funding programme is not correlated with the project execution plan, when such programme is not complied with or when the project management cannot obtain the necessary funds for the proper operation of the project in line with the execution plan. Risk reduction measure: permanent availability of the liquid assets assigned for the project, to be accessed in the short run.

**A.4. The interest risk related to the loans for investment financing in the environment protection projects** is a rate risk, of the due date or of depreciation and represents the possibility of the unfavourable variations in the interest rate with an impact upon the financial performance in the project financing process.

**A.5. The counterparty risk related to investment financing in the environment protection projects** is the risk coming from the uncertainty of the ability, capacity or desire of the investors to fulfil their contractual duties. A measure taken to lower the risk is to organize periodical meetings where the project status and the future steps will be discussed.

**B. The economic risk related to the investment in the environment protection projects** represents the probability that the investment be affected by the world economic and macroeconomic conditions, by the institutional and legal framework, the economic policies, etc., which can hinder the project exploitation from generating direct or indirect income, measurable or not, in order to cover the exploitation costs and to reimburse the potential debts.

The risk factors are firstly linked to the danger of exceeding the project budget and the implementation period, and they are as such: the costs under-valuation, the overvaluation of the income (of the potential demand, of the bearable tariff and of the collecting level), the modification of prices and/or tariffs for the elements in the operation and maintenance costs, etc.

Thus, there can be identified risks related to:

- the exceeding of the project costs;
- the emergence of additional works, in the shape of non-eligible expenses that need to be covered from own sources;
- penalties and additional or non-eligible costs related to the advertising and promotion component of the project.

These are a few of the most common economic risks:

**B.1. The risk of miscalculation of the total costs** of the environment protection project or the emergence of several additional works, in the shape of non-eligible expenses that need to be covered from own sources; these possibilities come from the inadequate technical solution or the evaluation of the necessary staff. A measure to lower the risk is to organize meetings, even since prior to initiating the project, with all the members involved and to adopt the optimum solution;

**B.2. The risk of non-compliance with the initial execution schedule of the environment protection project** or of the extension of the project life. Such prospects come from the extension of certain stages, failure of obtaining required approvals for continuation of the project, cooperation with the sub-contractors, lack of certain products when they are needed. On the one hand, this risk will lead to the increase in the need for financing, including the related interests and, on the other hand, to the delay of the commissioning with a negative impact upon the compliance of the clauses made with the suppliers and clients. A few measures to take for lowering the risk are a timely identification of the potential problems and the attempt to solve them beforehand, the insertion into the contract made with the suppliers/subcontractors of clauses that will cover these potential issues, the use of certain products made available by more companies.

**B.3. The risk of the irrelevant and unanticipated costs aiming the investment of the environment protection project**, derived from the existence of certain project components that require higher operation and maintenance costs than the ones predicted in the financing form – it is possible because of a lack of complete information about these costs. A possibility to lower the costs is the existence of contractual clauses with the suppliers of this equipment that will stipulate the training of the staff to carry out the operation and maintenance activities, as well as making available by the supplier of a maintenance plan, including the costs.

**B.4. The risk of emergence of penalties and additional costs related to the investment of the environment protection project**, a risk of exceeding the costs in case costs updates or unpredicted expenses have not been stipulated in the execution contract or in the investment budget. A possibility to lower this risk is the conformity with the amount and the destination of the expenses that need to be made.

The methodical study of the risk is firstly based on its organization, starting with the general categories to risks that are specific for certain areas. Most often, though, the evaluation comes down to the financial risks, which are generally valid for any economic structure.

Study regarding the identification of the economic and financial risks, particular to a project of investments in the waste collection and recycling.

A company with its registered office collects non-hazardous waste (paper, carton, plastic) with the purpose to recycle them and to manufacture paper for writing paper and plastic containers.

To this purpose, it purchases equipment for recycling and opens working stations in Ploiesti, Mizil and Campina, where it rents a location for waste collection. The company transports the collected waste from those three locations of Slanic, where it recycles them. The products thus obtained are shipped to the client in Bucharest.

## Evaluation of risks

The following distinct categories were used for evaluating the risks during the projects:

1. The identification of the economic and financial risks that may occur during the project and affects the results of the project. The drafting of a list with the identified risks that will highlight their characteristics.
2. Focusing on the risks, based on the previous experiences.
3. The quality-based analysis of the risks by a preliminary highlight of a quality-based analysis of the risks and of the conditions leading to the establishment of the priorities of the risks effects upon the project objectives.
4. The quantity-based analysis of the risks by measuring the probability of risks emergence and of their consequences, along with the estimation of the risks impact upon the project objectives.
5. Determining the risks that can occur in the project, as a result of the development of the activities.

**The economic and financial risks** that can occur:

Risk of the increase in the procurement costs of the working equipment, required for the activity;

Risk of the investment sub-financing;

Risk of locating the working stations;

Risk of non-efficiency in waste collecting;

Risk of non-efficiency in waste storage;

Risk of transport (vehicle and fuel);

Risk in the emergence of more lucrative recycling technologies, but not available in due time;

Risk of the equipment faulty operation and maintenance;

Risk of not honouring large recycling orders;

Risk of losing a client.

For a better interpretation of the identified risks, derived from the quality-based analysis, the *risk register* has been presented. This document includes an inventory of the risks and represents the written evidence of the analysis of the risk factors. The risk register is recorded on paper via electronic means, by a person who has been appointed for this activity. The following model will be complied with, after a certain algorithm:

✓ Column 1 – all the fields/departments involved in the project will be recorded;

✓ Column 2 – the objective to be followed for each field/department during the development of the project;

✓ Column 3 – all the risks to be incurred during the project activities for each field/department;

- ✓ Column 4 – the causes to influence the activity of each field/department during the project;
- ✓ Column 5 – the staff responsible with risk management for each field/department;
- ✓ Column 6 – the probabilities of the risk exposure prior to taking measures for its attenuation;
  - The probability to be evaluated is low, medium and high.
- ✓ Column 7 – the value of the impact associated with every inherent risk
  - The impact will be appreciated based on an evaluation scale (low, medium, high)
- ✓ Column 8 – the values of the product of probability x impact;
  - The exposure will be appreciated based on an evaluation scale (low, medium, high)
- ✓ Column 9 – the measures to be taken to deal with the risks that may occur during each project activity;
- ✓ Column 10 – the actions to be carried out to lower the risks to the minimum;
- ✓ Column 11 – starting data for the measurements in the column 8;
- ✓ Column 12 – data of the latest revision and the action status;
- ✓ Column 13 – the probabilities of the risk exposure, after taking measures to lower it;
- ✓ Column 14 – the values of the impact upon the project upon the event occurring;
- ✓ Column 15 – the values of the product of probability x impact;
- ✓ Column 16 – the potential secondary risks for the activities in every department;
- ✓ Column 17 – observations.

*Inherent risk – exposure to a certain risk, prior taking any actions to lower it.*

*Residual risk – the exposure derived from a certain risk, after taking the actions to lower it. The attenuation measures belong to the internal control. Hence, the residual risk is a measure of the efficiency of the internal control, and some countries therefore replaced the residual risk with the term of control risk.*

| Risk area (field, department) | Objectives   | Risk description   | Circumstances favoring risk emergence                                  | Risk manager          | Inherent risk |        |                 | Risk strategy (risk treatment actions) | Internal control instruments | Date of latest revision and action phase | Residual risk at the date of latest revision |        |          | Possible secondary risks | Observations |  |
|-------------------------------|--|--|--|-----------------------|---------------|--------|-----------------|--|------------------------------|--|--|--------|----------|--------------------------|--------------|--|
|                               |  |  |  |                       | Probability   | Impact | Exposure        |  |                              |  | Probability                                  | Impact | Exposure |                          |              |  |
| 1                             | 2  | 3  | 4  | 5                     | 6             | 7      | 8               | 9                                      | 10                           | 11                                       | 12   | 13     | 14       | 15                       | 16           | 17   |
| Financial                     | Purchasing the necessary equipment for production at the negotiated prices   | Modifying the equipment purchase costs                                 | Economic instability   | Project manager       | low           | low    | <b>LOW</b>      | RISK ACCEPTANCE                        | -                            | -  | -  | Low    | low      | <b>LOW</b>               | -            | Contract clauses to maintain the cost  |
| Financial                     | Financing the project according to the project   | Late financing for the project   | Lack of the financing funds  | Project manager       | low           | high   | <b>MODERATE</b> | RISK TRANSFER                          | -                            | -  | -  | Low    | high     | <b>MODERATE</b>          | -            | There is the possibility of bank loan financing  |
| Management                    | Placing the working sites in areas where the waste collection takes place within the agreed terms regarding the quantities and costs | Lack of statistic data regarding the production of certain waste types | Lack of statistic data regarding the production of certain waste types | Project manager       | low           | medium | <b>MODERATE</b> | RISK MONITORING                        | -                            | -  | -  | Low    | low      | <b>LOW</b>               | -            | Monitoring the collected amounts Monthly monitoring of the market evolution  |
| Collection                    | Efficient waste collection – only waste recyclable with the available equipment is targeted  | Inefficient collection of waste  | Carelessness of the employees responsible with waste undertaking       | Working point manager | low           | medium | <b>MODERATE</b> | RISK MONITORING                        | Performance indicators       | -  | -  | Low    | low      | <b>LOW</b>               | -            | Monitoring the quality of all the collected waste whenever necessary   |
| Selection                     | Efficient waste selection according to types is targeted   | Inefficient waste selection  | Carelessness of the employees responsible with waste undertaking       | Working point manager | low           | medium | <b>MODERATE</b> | RISK MONITORING                        | Performance indicators       | -  | -  | Low    | low      | <b>LOW</b>               | -            | Daily monitoring of the collected waste selection  |
| Public relations              | Correct information and prompt payment of the received waste equivalent  | Information disorder and non-payment in due time                       | Non-available information in isolated cases, lack of the liquidities   | Working point manager | low           | low    | <b>LOW</b>      | RISK ACCEPTANCE                        | -                            | -  | -  | Low    | low      | <b>LOW</b>               | -            | Printing flyers for the correct information and the existence of enough liquidity at each work point and at the headquarters |

| Risk area/field department | Objectives   | Risk description   | Circumstances favouring risk emergence   | Risk manager       | Inherent risk |        |                 | Risk strategy (risk treatment actions) | Internal control instruments                    | Date of latest revision and action phase | Residual risk at the date of latest revision |        |          | Possible secondary risks | Observations |   |
|----------------------------|--|--|--|--------------------|---------------|--------|-----------------|--|---|--|--|--------|----------|--------------------------|--------------|---|
|                            |  |  |  |                    | Probability   | Impact | Exposure        |  |   |  | Probability                                  | Impact | Exposure |                          |              |   |
| 1                          | 2  | 3  | 4  | 5                  | 6             | 7      | 8               | 9                                      | 10  | 11                                       | 12   | 13     | 14       | 15                       | 16           | 17  |
| Transport                  | Active security  | collisions   | Frequent use of busy routing with improper roadway   | Driver             | low           | medium | <b>MODERATE</b> | RISK ASSURANCE                         | Performance indicators and shift register       | -  | -  | Low    | medium   | <b>MODERATE</b>          | -            | Signing a contract with a transportation company for the cases when the own motor vehicles cannot perform the necessary transport CASCO insurance |
| Operation and maintenance  | Clear establishment of the operating and maintenance costs                 | Risk of higher equipment operation and maintenance costs | Equipment use by untrained personnel, higher electricity costs, higher duplicate parts costs               | Project manager    | medium        | Medium | <b>MODERATE</b> | RISK TRANSFER                          | Equipment use register and maintenance register | -  | -  | Medium | medium   | <b>MODERATE</b>          | -            | Including clauses specifying the non-modification of costs for the duplicate parts in the maintenance contract for all the maintenance period     |
| Production                 | Requiring a quality standard   | Risk to obtain poor quality products by recycling        | Use of improper materials in the fabrication of products and/or use of poor/old technology                 | Production manager | low           | High   | <b>MODERATE</b> | RISK MONITORING                        | -   | -  | -  | Low    | high     | <b>MODERATE</b>          | -            | -   |
| Production                 | Establishing the break-even  | Risk to obtain expensive products by recycling           | Use of expensive materials in the fabrication of products and/or use of expensive technology               | Production manager | low           | High   | <b>MODERATE</b> | RISK MONITORING                        | -   | -  | -  | Low    | high     | <b>MODERATE</b>          | -            | -   |
| Management                 | Having the stock in trade in order to deal with orders bigger than usually | Risk of not being able to honour big orders              | Inexistence of the waste to be collected; failure to transport and process the collected waste in due time | Project manager    | medium        | High   | <b>MODERATE</b> | RISK REDUCTION                         | Stock inventory                                 | -  | -  | Medium | medium   | <b>MODERATE</b>          | -            | Performing the transportation and manufacturing activities in the shortest time possible  |
| Management                 | Promoting the manufactured products and finding new clients                | Risk of losing the only client                           | Decline in/ Cessation of the client's activities   | Project manager    | medium        | High   | <b>HIGH</b>     | RISK TREATMENT                         | -   | -  | -  | Medium | high     | <b>HIGH</b>              | -            | Advertising in the regional press   |

In order to establish risks within projects we use the risk matrix above. This is, in fact, an enumeration of all the possible risks regarding the project in terms of planning, expenditure and income. The project risk matrix is usually divided to categories according to the risk types: Planning and Designing risks; Construction risks; Operation and maintenance risks; Other risks.

### Risk matrix

| Risk category             | Risk description                                   | Probability | Impact | Exposure | Probability | Impact | Exposure |
|---------------------------|--|-------------|--------|----------|-------------|--------|----------|
| Financial                 | Modifying the equipment purchase costs             | low         | low    | LOW      | 0.3         | 0.1    | 0.03     |
|                           | Late financing or will become ineligible           | low         | mare   | MODERATE | 0.3         | 0.4    | 0.12     |
| Management                | Placement of the work sites                        | low         | low    | LOW      | 0.3         | 0.1    | 0.03     |
|                           | Risk of not being able to honour big orders.       | medium      | medium | MODERATE | 0.5         | 0.2    | 0.10     |
|                           | Risk of losing the only client                     | medium      | high   | HIGH     | 0.5         | 0.4    | 0.20     |
| Collection                | Inefficient waste collection                       | low         | low    | LOW      | 0.3         | 0.1    | 0.03     |
| Selection                 | Inefficient waste selection                        | low         | low    | LOW      | 0.3         | 0.1    | 0.03     |
| Public relations          | Information distortion and non-payment in due time | low         | low    | LOW      | 0.3         | 0.1    | 0.03     |
| Transport                 | Collisions   | low         | medium | MODERATE | 0.3         | 0.2    | 0.06     |
| Operation and maintenance | Equipment operation and maintenance costs          | medium      | medium | MODERATE | 0.5         | 0.2    | 0.10     |
| Production                | Obtaining poor quality products                    | low         | high   | MODERATE | 0.3         | 0.4    | 0.12     |
|                           | Obtaining expensive products                       | low         | high   | MODERATE | 0.3         | 0.4    | 0.12     |

**The risk score matrix** is a matrix obtained by combining the probability and impact scales.

*The risk probability scale* has values between 0 (probability of the impossible event) and 1 (probability of the certain event). A general scale that is used is comprised of the scales 0.10, 0.30, 0.50, 0.70 and 0.90, where 0.10 is the probability for a very unlikely risk emergence, and 0.90 is the probability for a very probable risk. The probability scale may also have ordinal values: *very unlikely, unlikely, medium probability, probable and highly probable*, corresponding to the probability values above.

*The risk impact scale* reflects the severity of the risk impact on the project objectives. The impact scale may be ordinal (with the impact values *very low, low,*

*moderate, high, very high*) or may be cardinal (having the following values: 0.05, 0.10, 0.20, 0.40 and 0.80).

The probability and impact matrix may be represented either as cardinal or as ordinal.

The cardinal risk score matrix will be obtained taking into consideration the probability and impact levels in their qualitative expression, previously considered. Usually, in this matrix, the low impact values are coloured in green, the moderate values in yellow and the high impact values in red, for more relevance.

On the other hand, by method of the cardinal score matrix, the risk score may be determined by the relation: ***Risk score = Probability × Impact***

The risk scores are calculated. It is considered that a score lower than 0,05 means that the risk has a low impact; the score between 0,05 and 0,15 has a moderate impact, and the score over 0,15 indicates the fact that the risk has a high impact.

**The risk treatment plan** consists in predefining the actions to be taken when an unwanted event intervenes. The risk treatment plan is usually part of the risk management plan, but it can also be integrated to the same extent in other elements of the project plan (for example, it is part of the management plan phases/ stages or of the quality plan).

## Conclusions

**The case study shows** that the implementation of the project will bring benefits to the local community's health, along with an increase in the local productivity (as a consequence of creating work places, increasing the local economy competitiveness and local attraction of an amount of direct investments). Moreover, **the project has a significant impact on the environment**, as the waste collection and recycling also contribute to the landscape improvement in the area.

The risks identified within the analysed project involve every activity field, and the one with the most serious consequences is the management level – *losing the only client available at the time of the analysis*. The other risks are accepted and can be treated with a minimum of effort. Nevertheless, risk identification is not a punctual activity; it must be revised periodically during the life cycle of the project.

The analysis regarding the risks associated with the proposed project highlights the *relatively low risk potential* of the future activity due to its dimension and the activity field.

The results of the analysis allow the conclusion that the prevention measures presented within the *prevention plan* reduce the risks identified on acceptable levels.

The risk identification and classification starts during the planning time and continues throughout the project. The financial risks are met in the implementation and start-up of the investment project. Their treatment and the treatment of the economic risks have the role to show if the project is feasible.

All the risks identified in the processes and activities of the project must be assessed in a quantitative analysis process. The outcomes of the analyses and assessments are registered and communicated to the personnel dealing with the risk management.

## Risk prevention plan

| No. | Accomplished risk assessment: EIM/<br>Risk report/Systemic risk evaluation | Risk areas (field, department) | Potential hazard  | Risk     | Probability | Consequences   | Prevention measures   |
|-----|--|--------------------------------|---|----------|-------------|--|---|
| 3   | Systemic risk assessment   | Management                     | Placement of the working sites in areas far away from the headquarters or where an insufficient waste quantity can be collected | low      | low         | <ul style="list-style-type: none"> <li>– collecting too small quantities in order to reach the break-even;</li> <li>– collecting at too high costs to reach the break-even;</li> <li>– the possibility to raise the work site maintenance costs;</li> <li>– emergence of delays in the production process;</li> <li>– financial losses;</li> <li>– reselection;</li> </ul> | <ul style="list-style-type: none"> <li>– monthly assessment of the work site profitability;</li> <li>– negotiating the work site maintenance costs;</li> <li>– changing the location of the work site;</li> </ul> |
| 4   | Systemic risk assessment   | Collection                     | Inefficient waste collection  | low      | low         | <ul style="list-style-type: none"> <li>– staff training/ retraining;</li> <li>– staff motivation/ bonuses and sanctions;</li> </ul>  | <ul style="list-style-type: none"> <li>– staff training/ retraining;</li> <li>– staff motivation/ bonuses and sanctions;</li> </ul>   |
| 5   | Systemic risk assessment   | Selection                      | Inefficient waste selection   | low      | low         | <ul style="list-style-type: none"> <li>– reselection;</li> </ul>   | <ul style="list-style-type: none"> <li>– staff training/ retraining;</li> <li>– staff motivation/ bonuses and sanctions;</li> </ul>   |
| 6   | Systemic risk assessment   | Public relations               | Information distortion and non-payment in due time  | low      | low         | <ul style="list-style-type: none"> <li>– image issues</li> </ul>   | <ul style="list-style-type: none"> <li>– the existence of enough liquidities to cover the possible issues</li> <li>– local/ regional advertising</li> </ul>   |
| 7   | Systemic risk assessment   | Transport                      | Collisions  | moderate | low         | <ul style="list-style-type: none"> <li>– Impossibility to use own vehicle for transportation;</li> <li>– increasing the transportation costs by using a hired vehicle;</li> </ul>  | <ul style="list-style-type: none"> <li>– hiring experienced drivers;</li> <li>– insuring the motor vehicle;</li> </ul>  |

**Risk prevention plan (Continuing)**

| No. | Accomplished risk assessment: EIM/ Risk report/Systemic risk evaluation | Risk areas (field, department) | Potential hazard   | Risk     | Probability | Consequences  | Prevention measures   |
|-----|---|--------------------------------|--|----------|-------------|---|---|
| 8   | Systemic risk assessment  | Operation and maintenance      | Risk of higher equipment operation and maintenance costs | moderate | medium      | – increasing the price of the products for sale;      | – the existence of clauses specific to the duplicate parts in the maintenance contract; |
| 9   | Systemic risk assessment  | Production                     | Risk to obtain poor quality products by recycling        | moderate | low         | – not finding an outlet;                              | – market study whenever necessary   |
| 10  | Systemic risk assessment  | Production                     | Risk to obtain expensive products by recycling           | moderate | low         | – decreasing the selling price                        | – market study whenever necessary   |
| 11  | Systemic risk assessment  | Management                     | Risk of not being able to honour big orders              | moderate | medium      | – image issues of the company on the market;          | – the existence of a considerable end products stock/ raw material stock                |
| 12  | Systemic risk assessment  | Management                     | The risk of losing the only client                       | high     | medium      | – losing potential clients                            | – the existence of an order and client book   |
|     |   |                                |  |          |             | – the impossibility to sell the manufactured products | – searching for new clients   |

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