ESTIMATION OF THE METALLURGICAL INDUSTRY IMPACT ON THE ENVIRONMENT

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ABSTRACT

Objectively, the ecosystem in its development and working implies the accumulations on of some nonconcordances. Summing these disfunctions without taking into consideration their attenuation, may lead to producing, achieving of the risk, with various intensities.

The evaluations of the impact on the environment represents an instrument that is used to help and improve the process of taking decisions.

KEYWORDS: environment, impact, metallurgical industry

1. Introduction

The economical activity is strongly related to the environment by what is called materials balance. According to the law of thermodinamic, the law of mass and energy conservation, the raw material, the energy consumed for its processing, which were taken from the ambient environment, must appear elsewhere and under other kind as part of the economical system.

In other words: $\sum i = \sum e$ where: i is the imputs and e reprezent the outputs.

Practically, processing the raw materials and the materials must have results as both finite products and also wastes witch can be solid, gaseous or liquid. These wastes, depending on their toxicity may affect more or less the environment.

The problem that must be taken into consideration nowadays and in future is to find the technological solutions, the most adequate ones to reduce the polluting emission.

The industry with its various branches represents the main source of the environment pollution.

The metallurgical industry both because of the kind of raw materials and of the enormous quantities used, and by the complexity of its technological process, is one of the main artificial pollution sources of the environment with gaseous and powders containing heavy metals. That is why an important preoccupation in this sector must be the exact determination of the metallurgy contribution to the general pollution of the environment and consequently the continuous improvement of the pollution control installations.

2. The evaluation of the impact on the environment

In the functioning and developing of the ecosystem there is a certain capacity of tolerance, limited by a threshold. At the overfulfilment of this threshold, the ecosystem enters in a fragile state, which through some lack of balance it generates negative phenomena with severe consequences in its functioning or existence.

Considering its feature, metallurgy represents a risk, in consequences a possible danger of appearing a situation when the development of an action to be submitted to a perturbation or even its breaking off.

Objectivelly, the ecosystem in its development and functioning implies the accumulation of a particular structure. Summing all these malfunctions without taking them into consideration or their attenuation may lead strictly to the risk, with various intensities: accident, break, disaster.

The evaluation of the impact on the environment represents an instrument which is used to help and improve the process of decision taking. The aim of an EIM (Evaluation of the Impact on the Environment) is to determine the potential effects of a suggested development project regarding the environment, society, health.

Although there are some definitions of EIM, neither of them is generally accepted. The definition after Clark (1989) seems to be the more comprising and direct: "*The evolution of the impact on the environment is a procedure to encourage the decision responsibles (managers) to take into account the*

possible effects of investments development regarding the environment quality and raw materials productivity and an instrument for collecting and assembling data which are considered necessary by the planners in order to achieve development projects, more durable and favourable for the environment. Usually the EIM is applied in view to sustain the policy towards a more rational and durable use of the resources for the economical development".

As part of the European Union which aims to a political, economical integration and stability the environment policy came into operation in 1973.

UE established two main principles to which all the environment policy measures must subordinate.

First Principle: "The pollution source must pay for the control costs of the emissions and for the antipollution measures"

Second Principle: "Better prevent than cure" (Williams, 1998).

The implementation of the European instructions regarding the effects evaluation on the environment is a logical measure, in accordance with the second principle.

In March 1985, The Environment Council of the European Community approved the NORM 85/337/EEC, which was officially put into use on 27 June 1985. This is known also as "EIM NORM". The aim of this NORM "regarding the evolution of some public and private project effects on the environment" is immense. This takes into consideration both the direct effects and the indirect ones of a project on the following factors:

-popullation, flora, fauna;

-soil, water, air, climate and landscape;

-interactions among the factors mentioned at the previous points;

-the material possessions and the cultural heritage.

The environment impact must be analyzed from a triple perspectives.

-the opportunity cost of the natural ressources use, which influences the economical value of the environment foods.

-the modification of the self-adjustment capacity of the environment.

-the modification of the human welfare.

From a graphical point of view, the environment impact may be shown as in fig.1.

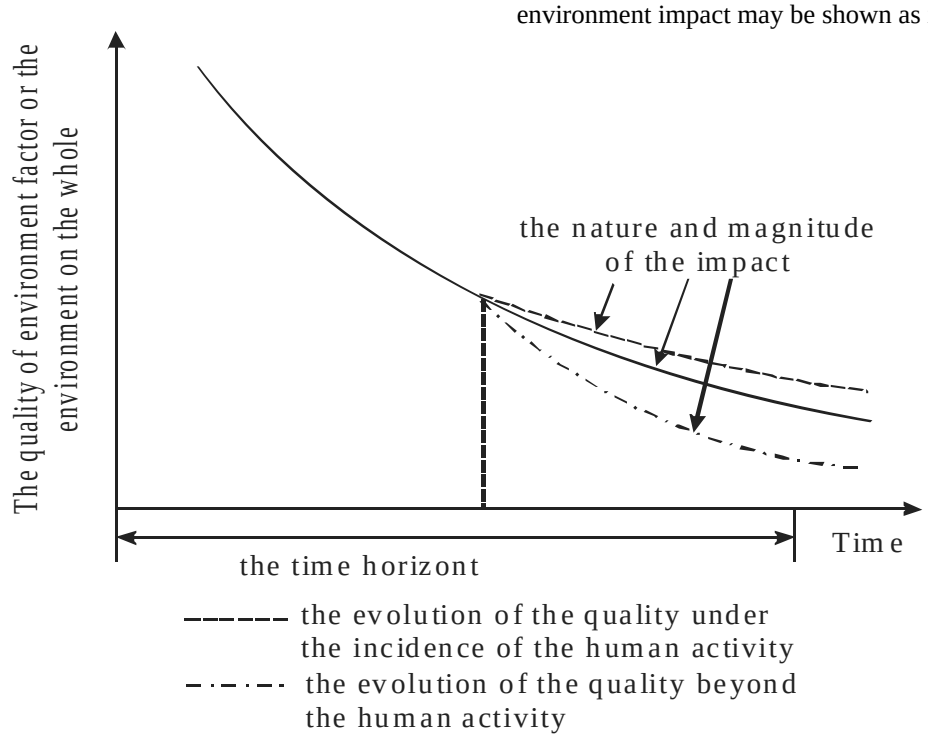

Fig.1. *The platting of the environment impact concept.*

The perception of the impact on the environment is according to the adopted criterion namely:

a). According to the may of appearance:

-direct impact

-indirect impact

-cumulative impact

-synergic impact

b). According to the duration:

-permanent impact

-temporary impact

c). According to the effect kind:

-positive impact

-negative impact

d). According to the sphere of extent and importance:

-global impact
-residual impact
-main impact
-secondary impact.

Although there are different norms for drawing up EIM we may identify some main stages for the fulfillment of the process. These stages, diagramed in fig.2, they are main because the process will not function if they are not taken into account.

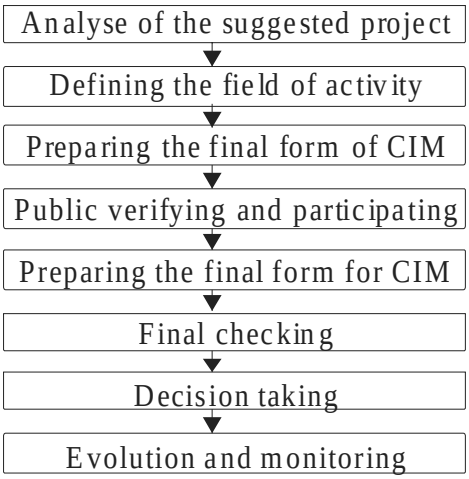

Fig.2. *The main stages of EIM, where CIM-communication environment impact.*

A complete description of all possible impacts of a project suggested would represent a enormous task and also, one very inefficient because there is a significant number of minor impacts as importance. From this reason, EIM aims mainly at the important impacts on the environment.

An important role in this respect has the identification, which must be achieved in at least two stages:

a). at designing, stage when it must and may apply "The second principle of the prevention"

b). in exploitation, stage in which it is strictly determined the way in which the project responds to the imposed theme and measures are established to rectify the eventually deficiencies.

The American norms define the identification as a "early and open process, aiming at identifying the significant aspects connected to the suggested activity.

One of the identification targets is that of informing and implying all the agencies and persons that are interested or affected by the suggested project.

Another target is that of identifying the aspects that must be minutely analyzed, the same those which not being sufficiently important, will be ignored".

Stage b) does not have connection with the permanent monitoring of the projected and worked objective and refers to stage of putting into function and has in view to correct the negative effects that can appear from the projection and working stages.

In parralel with the identification of the risks it is necessary their cuantification and the measures in order to prevent. In this respect, we will mark with 1 10 the risks alongside with the impact rise. (1 being the minimum risk accepted according to the environment norms) and with -10 -1 the imposed measures (adding that 0 risk does not exist and in this respect, the suggested valuable measures, summed up with the risk, cannot lead to 0 risk).

For the evolution of the environment impact (EIM) we suggest the following diagram, shown in table 1.

This presents the following advantages:

-identifies risks;
-visualize the measures of reducing the risks and their effects;
-creates the basis for an efficient monitoring.

Table 1. *Diagram evolution environment impact where: E-estimated; R-achieved.*

Activity	Affected structure	Effect (1 → 10)		Measure	Effect (-10 → -1)		Total	
		E	R		E	R	E	R
1 .	water							
	air							
	soil							
. n	water							
	air							
	soil							

3. Conclusions

The past faults due mainly to the idea of an rapid, economic growth at any rate, even without taking into account the effects produced an the environment had frequently to ecological damages, very difficult to be remedied.

The destruction of the environment is considered by many people as a price to be paid in order to obtain a high standard of living.

The question that may be asked nowadays is: how can the preoccupations from the environment protection domain be integrated in the economical rise wanted by everybody? In this respect, EIM cumulated with the adequate measures represent an important step.

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