

# Identification of the environmental aspects generated by the activities of the company SAMHA, Setif

Fatima Adjiri<sup>1</sup>, Abdelmalek Harrag<sup>1</sup>

*1: Department of Biology and Plant Ecology, Laboratory of Natural Resource Valorisation, SNV Faculty, Ferhat Abbas University Setif-1, 19000 Setif, Algeria. Email: [adjirifatima@gmail.com](mailto:adjirifatima@gmail.com)*

## Abstract

*The implementation of an Environmental Management System in the company is a voluntary process that requires a strong commitment on the part of the management of a company. This system is based on the initial environmental analysis. The objective of the present study is to carry out an environmental analysis within the company "SAMHA", in order to establish the list of the environmental aspects and to identify those considered as significant. In this context, an urgent study of an Environmental Management System Audit and appropriate solutions are needed at the "SAMHA" company level, to carry out actions that will reduce or eliminate significant environmental impacts such as: improving its environmental performance and showing its commitment to a sustainable development policy.*

**Keywords:** *Environmental Aspects, Environmental Analysis, Environmental Management System, Company, SAMHA.*

## I. Introduction

For several years, and especially since the Rio Conference on Environment and Development (1992), environmental problems, and more generally the issue of sustainable development, represent growing, important and strategic issues for many companies. The difficulties faced by Algerian companies in integrating the environment, particularly in the implementation of an Environmental Management Systems (EMS) have gradually begun to be considered seriously with increasing acuity [1]. This growing attention to the state of the environment and then to the sustainable development has been progressively translated into regulations on the base of which recommendations and specific demands are required to companies, both at the national and the international levels [2].

Environmental analysis is a step prior to the implementation of any Environmental Management System [3], in order to make an inventory of the aspects (the generating events) and the environmental impacts (the consequences) associated with the company and to prioritize these Significant Environmental Aspects (SEA), as well as the legal requirements that apply [4].

This analysis was carried out on the company «Samsung-SAMHA-Setif». The environmental

state in this area showed the gap between the requirements of the EMS and the level of integration of the environment created by the environmental issues for companies [5]. This raised two fundamental questions to which answers should imperatively be brought and they were:

- is the establishment of an EMS compliant with international standards (ISO 14001) to improve the environmental performance of Samsung-SAMHA?
- are the identified environmental aspects and impacts being controlled to an acceptable level, in order to reduce these significant environmental aspects?

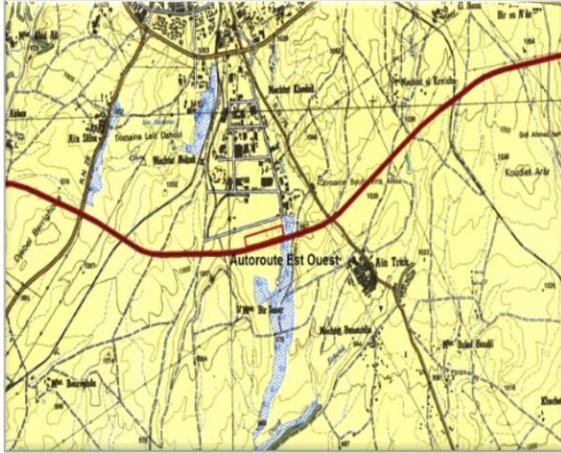
## II. Methodology

### A. Presentation of the company "SAMHA"

The official name of the company is SAMHA SPA. It was created on 2006 and depends on the Cevital Group. Its main activities are the production and marketing of household electrical appliances (air conditioners, washing machines, televisions, cookers).

### B. Location

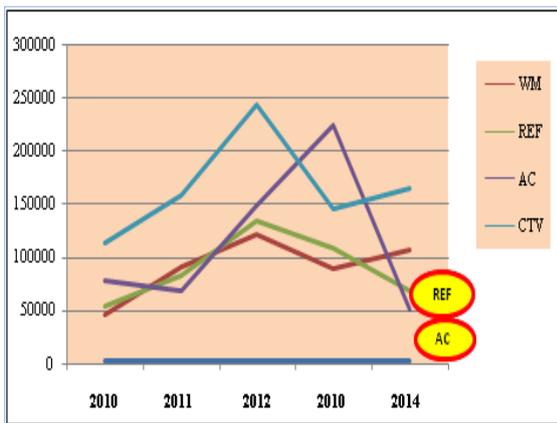
The company is located in the southern part of the Setif industrial zone (Algeria) as shown in Figure 1:



**Figure 1:** Location of the company "SAMHA" in the industrial area of Sétif (Scale 1/1000).

**C. Production**

As shown in Figure 2, the quantitative production at SAMHA had evolved over the past five years, but there was a decrease in the production of air conditioners and refrigerators in 2014 due to a fire which had damaged a part of the production unit.



WM: Washing machine; REF: Refrigerator; AC: Air Conditioner; CTV: TV set

**Figure 2:** Yearly quantity of products and by-products manufactured at SAMHA (2010/2014)

**D. Application of the method**

The identification of the environmental aspects associated with the company activities was carried out by the "criticality coefficient" in order to distinguish which were significant or not. The method consisted in assigning a "criticality" coefficient ranging from 1 (negligible criticality) to 1000 (extremely strong criticality) to each of the identified environmental aspects in the considered site. This coefficient is calculated as:

$$\text{Criticality} = \text{Importance} \times \text{Mastery} \times \text{Sensitivity}$$

For instance the following cases were applied:

- *Case 1:* the studied environmental aspect was subject to compliance with a regulatory threshold. For this case a score of 10 was assigned if the site performance of this aspect complied with the threshold. However this score was lowered by one point if the performance achieved by the site were 10% below the regulatory threshold up to a score equal to for negligible importance and if the performance of the site were above the threshold, therefore the parameter was quantified by a score of 1000.

- *Case 2:* the studied environment aspect was not subject to a regulatory threshold. Then it was necessary to define a set of questions to assess the importance of this environmental aspect. The objective of this method was to draw up a list of 5 to 10 questions likely to establish as objectively as possible the level of importance to be attributed to this environmental aspect. The questions were phrased in such a way that the answers were only 'Yes' (or 'True'), 'No' (or 'False'), or 'I do not know'.

A 'Yes' answer was attributed 1 point (minor aspect); to a 'No' answer the corresponding score was 10 points (aggravating aspect).

The arithmetic average of the points obtained (total points/number of questions) would give a score between 1 and 10 to the environmental aspect studied.

- *Case 3:* deals with the hierarchy of the identified environmental aspects where the criticality mentioned above 125 (5 x 5 x 5) highlights the most significant environmental aspects of the company [6].

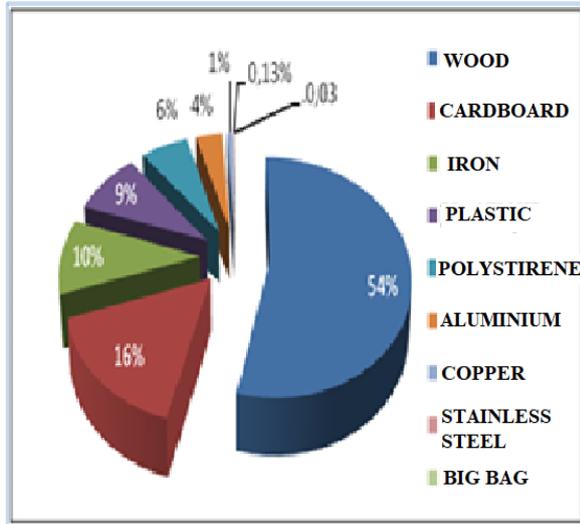
- *Case 4:* Identification of emergency situations basing on the QHSE management of the company "SAMHA" which is in particular responsible for the animation of safety, hygiene, and the environment. It is also responsible for enforcing audit rules, services, outreach and staff training. The objective of the HSE is to protect these three targets in the event of a technological/natural disaster, creating occupational or major risks.

**III. Results and discussions**

*A. Ordinary industrial waste*

- The problem concerned the non application of the separation of waste at the source, its quantity and volume which increased each year due to the overwrap of the imported assembly parts.
- The proposed approach for this problem was a compulsory internal evaluation. The generated

waste incomes would be invested for the environmental purposes. The waste tracking by the company "SAMHA" until the final treatment was as shown Figure 3:



**Figure 3:** Classification of waste generated by SAMHA according to the importance of (2011-2014) production.

#### B. Dangerous Special Waste (DSW)

- The problem consisted of the separation of special and dangerous waste which was not applied. This was a significant aspect that could not be controlled because total disposal solutions did not exist.

- The proposed solution suggested an implementation of an intervention plan for various accidents and also a quantitative reduction at the source.

#### C. Storage of chemicals

- The problem was the handling of the chemicals and their transfers.

- It was proposed to follow the storage conditions mentioned in the safety data sheet and to minimize the treatment of chemicals. In all cases the staff should be aware.

#### D. Noise emissions

The highway has an influence on the sound environment of the site by the noise of road traffic.

#### E. Use of the raw material

- The problem was the handling and transfer of raw materials which were usually accompanied by losses due to poor storage conditions which affected and weakened the packaging.

- The problem was solved by establishing a supply program, implementing shelving by promoting storage at height close to the consumption points.

#### F. Water consumption

- Water was used extensively in testing washing machines without recycling.

- This could be minimized by establishing a test water recovery system, a rainwater recovery system, and adjusting the flow of drinking water pumps to a minimum, using a more efficient tap.

#### G. Energy Consumption

- The problem was the detection of energy overuse as well as the security service which ensured that energy was not lost 24 hours a day and 7 days a week.

- The solution consisted on the use of renewable energy and the double glazed window to compensate for heat losses, purchasing energy-saving materials, turning off unnecessary lighting and installing meters in the workshops.

#### H. Technological risks

- Accidental risk assessment is a delicate step in the environment and conditions the implementation of a response plan emergency according to various situations.

- The solution depends upon each case like for instance the following:

- In case of fire: Cutting off energies; Evacuation of the site;
- In case of accidental spill: Use of absorbent sand;
- In the event of an explosion: Call fire fighters, gendarme and the hospital to complete the intervention.

The last phase was a regulatory analysis that represents an inventory of legal requirements this task has been realised out by:

- A collection and awareness of the current regulations applicable to the activities of the company;
- An analysis of the laws to define the responsibility of each structure and assess the compliance of the company's activities with the regulatory texts. This analysis showed that most of the texts complied with regulatory requirements, except for a few who were not applied yet.

A fire did occur in the company SAMHA on 20/07/2014 as shown by the following photo:



**Photos:** Fire in the company SAMHA, Setif (20/07/2014)  
(<http://www.setif.info/article8795.html>).

#### IV. Conclusion

Despite the anomalies that were found at SAMHA, the company was making efforts and investing budgets to reduce the impacts and to improve the environmental management basing on the following points:

- Installation of a wastewater treatment plant;
- Creation of a waste treatment area;
- Construction of a dangerous special waste storage area;
- Maintenance of green spaces.

#### References

- [1] AFNOR, Guide pratique de management environnemental. AFNOR, La plaine Saint-Denis, pp. 21-22 (2005).
- [2] A. Lefebvre, Etude de la gestion interdisciplinaire des problématiques environnementales au sein d'institutions pédagogiques. Mémoire de fin d'études, Spécialisées en Gestion de l'Environnement, Université Libre de Bruxelles, 134 p (2005).
- [3] O. Faure-Rochets, Analyse environnementale, les clés de la réussite. AFNOR, La plaine Saint-Denis, (2005).
- [4] P. Baracchini, Guide à la mise en place du management environnemental en entreprise selon ISO14001. Troisième édition. Presses polytechniques et universitaires Romandes, Lausanne, 187 p (2007).
- [5] A. Jounot, 100 questions pour comprendre et agir, le Développement Durable. AFNOR, Saint-Denis La plaine, 156 p.
- [6] A. Prats, M. Nomine, Mise en place d'un système de management environnemental, G 5000. La Direction scientifique de l'INERIS, Paris, 15 p (2006).