

HOW TO CALCULATE THE ENVIRONMENTAL COSTS? CASE COMPANY GRAFICA CIENFUEGOS

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SUMMARY

The world urgently needs to protect the environment, many companies and organizations devote huge resources to reach that goal and achieve sustainable development as the highest standard of achievement for any country or organization. It then becomes imperative to determine how much the companies spend on the environment, taking into account that the Entities have an implicit contract with society and the environment, the product of the resources used and waste and waste pouring, which is why one needs to calculate and record the environmental costs of products to enhance the environmental management of the entity and thus promote an excellent decision-making. The following research seeks a procedure which allows solving this problem, making its composition with the use of various techniques within which highlights the environmental checklists and product life cycle, which also allows knowing separately as each process and product impacts the environment.

KEY WORDS: Environment; Environmental Costs; Environmental Management; Life Cycle; Processes.

INTRODUCTION

Sustainability is a need in the contemporary world and has become a prerequisite for the welfare of large segments of the population, national economy and even the developing countries. That is why the implementation of effective environmental management is a challenge for all organizations and businesses that want and have to contribute to improving the environment and promote sustainable development.

Economic entities have an implicit contract with society as they use scarce natural and human resources and in return, provide products, services and community waste, in this way the company has an environmental responsibility, a responsibility that is necessary to measure and record internal decisions and promote this information to the natural or legal persons concerned.

That is why "Accounting as a communication process that establishes a link related to a particular issuer with a variety of receptors" [Fuentes, 1993, p. 317]⁽¹⁾, is in full harmony with the general theory of communication and the need for financial and nonfinancial information to business change product from the mid 70's. In any case, the defining features of accounting that have been described; clearly show their intention to provide as objective as possible a picture of the economic reality to which it refers.

According to Corominas and Carrillo (2006) in the world, now, several companies are trying to adapt to changes in the care of the environment. Having to take on the principle that the polluter pays, will be forced to reflect in its financial statements the cost of environmental damage that they have generated as well as adapt to the widespread use of economic instruments that reward and punish the polluting eco-efficiency.

A significant element to consider is that new ideas on competitiveness and the environment, it is no longer enough to have resources, productive employment in direct connection with "a new model with combined environmental improvement is what it takes to be competitive today,". [Porter, 2005, p. 45]⁽²⁾.

However, studies of Kaplan and Cooper (2003) show that accounting for the knowledge and social technology has not sufficiently addressed the environmental issue or efficient, or accounting

systems of management are not appropriate in the current environment.

However, "it is in management accounting in which environmental issues take a multidimensional real content" [AECA (Spanish Association of Accountants and Administrators), 1990, p. 5]⁽³⁾. First, its aim and specific field of management accounting is deeply intertwined with business management and the endogenous process of decision making. Second, the current conception of the value creation process, which extends the company's vision as a black box and open system extends to networks of interaction with their surrounding environment (social and natural).

In developed countries, accounting has been formally allied with the environmental aspects, so we can name countries such as Germany, Scotland, Spain or Argentina in our continent and especially the United States, where these topics are taken into account and even there are constant studies and research is active and where different organizations, among others, tax authorities and reputable companies. So are commonly used terms such as environmental accounting, environmental management accounting, ecological accounting and ecological accounting also.

According to Gale (2001) Environmental management accounting provides comprehensive means to incorporate environmental considerations in decision-making. The inclusion of internal environmental costs in its accounting helps a company to work to maximize their current profitability. A company can go further, taking into account external environmental costs, especially to the extent that they can reach, requiring to internalize these costs in the future. The magnitude of this benefit will depend on how comprehensive and creative these methods are used in their decision-making.

But although there is progress in terms of how to manage these so-called environmental costs, they are still inadequate techniques and methods for calculating and recording, although it is recognized that the management of these should be based on product life cycle or service and the use of techniques for their management in order to improve the efficiency of processes and production and environmental management system.

Problematic situation:

No country, including Cuba is exempt from the evolutionary implications of management accounting in the global world of business and research. For this to achieve perfection and economic integration, it is necessary to assimilate new concepts and reflect these in the Cuban accounting regulations.

The theory and accounting practice in 1975, Cuban resurfaces after disappearing money relations - trade between firms in the sixties (and with them the Accounting) heavily influenced by U.S. accounting practice in the period before 1959, although it was being weakened by changes in national life, this resurgence was distinguished by the accounting concepts that were used in the former socialist countries of Eastern Europe, Cuba a part of the member countries of the Council for Mutual Economic Assistance (CMEA). From this point, we generate new Cuban accounting changes, continuous pursuit of perfection, according to analysis by Borrás and Lopez (1996) and Armenteros and Vega (2003).

In the 90's up to the present one notes how universities have evolved rapidly, with this finding that many companies still use outdated systems and theories that have been modified or missing and so is attentive to the goals and objectives of business improvement, so that the theoretical tooling should be increased - practical management generating new elements to allow management to make better decisions.

Cuban enterprises by the National Association of Economists and Accountants of Cuba (ANEC) and the universities primarily recognize and harmonize the most successful tools in the world for validation and subsequent application Cuban increasing economic development, this being a contribution to the Cuban accounting practice.

In this sense, the main researchers related to the environmental aspect in the accounting and management according to studies by Baujín (2005) continued by Pelegrin (2007) have been framed in the field of tourism and qualitative assessment of environmental impacts, ignoring the relationship can be established between the qualitative and quantitative contribution to enrich the financial and management accounting, while acknowledging the lack of conditions, resources, organization, technology in many Cuban companies given the current economic situation.

Despite the efforts being made in our business there are still those systems focusing on

accounting allocation, not being intended to produce an effect on workers of the organization, and society, but is still studying how to harmonize these techniques and tools that are used internationally in Cuba to achieve sustainable economic development.

This research proposes a procedure for the management of environmental costs, with applications in different enterprises.

Scientific Problem

The environmental management system of the Gráfica Cienfuegos does not consider environmental costs in decision-making process.

Hypothesis

With the validation of a procedure for the management of environmental costs in Gráfica Cienfuegos it contributes to improved environmental management.

General Objective

To establish a procedure for the management of environmental costs to meet the needs of the company under research, mainly in the decision making process.

Specific Objectives

1. Assess the state of science on environmental management accounting and the need for its application.
2. Define elements, requirements and procedures for the design and validation of the procedure for environmental cost management.
3. Validate the procedure outlined in Gráfica Cienfuegos, Cuba.

DEVELOPMENT

Environmental management accounting and environmental cost

Gray et al., (1993) define environmental cost accounting as a management tool addressing all areas of accounting that may affect the response of business organizations to environmental issues, including the new area of eco-accounting. According to some theorists, the "environmental cost accounting is the generic name of the field study, that highlights the correlation between accounting, accounts, and the ecological element" [Xiaomei, L, 2004, p. 25] ⁽⁴⁾.

Environmental accounting can also be defined according to Ludevid (1999) as the generation, analysis and use of non-financial information, aimed at integrating economic and environmental policies of the company and build a sustainable business.

The main problem of environmental management accounting (Environmental Management Accounting for its acronym in English) by United Nations Division for Sustainable Development (2001) and Das (2007) is that it lacks a standard definition of environmental costs. Depending on various interests, they include a variety of costs, for example, cost of provision or investment costs and sometimes also external costs such as costs incurred outside the company, mostly to the general public, of course, this also is true for environmental gains business activities (environmental cost savings). Additionally, most of these costs are not tracked systematically and are attributed to products and processes responsible for them, adding them simply on the overall structure, then it becomes imperative to know how to identify and classify, for this there is another problem because classifications of environmental costs are very heterogeneous, a variety of authors who provide different categories, but we must emphasize that the principles remain, according to Document No. 13 of AECA, then this problem is addressed, along with the concept of environmental costs.

Environmental Costs

The environmental costs are incurred by society impacts, organization, or "the individual result of the activities that affect environmental quality." [Scavone, G, 2000 p. 3] ⁽⁵⁾. These impacts

can be expressed in monetary or non-monetary terms, including any direct cost or less tangible, as consequences for the company in the short or long term.

Environmental costs include both internal and external costs and costs related to all that occurred in connection with damage and environmental protection. Environmental protection costs include costs of prevention, provision of planning, control, understanding of actions and damages that may occur in the company and affect the government and people.

Other definitions given to the environmental costs is that they are from specific environmental activities of the company, arising from voluntary measures or prescribed by law, aimed at the prevention, mitigation, treatment, utilization or disposal of waste or emissions and costs that occur or may occur by the omission of environmental operational measures.

Identification or classification of environmental costs

As stated previously one of the biggest problems today is the way or route to identify the environmental costs, product recorded financial accounting environmental costs being included in some of these financial accounts. Besides the different categories that are used they make the work of accountants more difficult, mainly by overlapping concepts.

According Scavone (2000) there are three possibilities as to the identification of environmental costs that are used to reflect the environmental information:

- a) The environmental cost as a contingency and / or loss.
- b) The environmental cost as a major asset or investment.
- c) The environmental cost and expense.

Another classification that is offered to the environmental costs are provided by Luisa Fronti de Garcia (1999), it is proposed that they can be divided into four main areas: capital costs, operating costs, remediation, research and development.

Another interesting classification was performed by the Whistler Centre for Business and the Arts (2006), which distinguishes environmental costs as internal or external to the company.

Examples of environmental costs, as well as a framework used to identify and classify environmental costs can be seen below. There are different ways

to categorize costs Kaplan (2005), Polimeni (2004) and Bailey (1991). The cost accounting systems typically classified as:

- (1) Materials and direct labor,
- (2) Manufacturing or factory overhead expenses, (i.e., operating costs except direct materials and labor).
- (3) Sales,
- (4) General and administrative
- (5) Research and development.

A company defines environmental cost depending on how one intends to use information (cost allocation, capital budgeting, process design / products, other management decisions) and the scale and scope of the exercise. On the other hand, it may not be clear whether a cost is environmental or not, some costs fall into a gray area or can be classified as partly environmental and partly not. The fact is, as stated in the Environmental Protection Agency of USA (2000) (EPA for its acronym in English), if a cost is environmental or not, it is not critical, the goal is to ensure that relevant costs receive proper attention.

In general the environmental costs can be grouped into four major groups that are defined below:

Prevention costs: The cost of activities carried out to avoid the production of pollutants and / or debris that can damage the environment.

Cost of detection: Those that are incurred for determining whether products, processes or activities are in line with environmental standards.

Internal failure costs: These occur when there are activities that produce waste contaminants but have not yet been released into the environment.

External failure costs: These are costs that are generated and then removed from the company. These in turn can be subdivided into realized (actually incurred by the company) and unrealized (certain costs of the company resulting from the company, which in some way affect society).

The above classification is an essential element for the registration and control of

environmental costs, according to Rodriguez (2006), compared with the systems of quality management. Although as shown below are used the checklists defined Jasch (2002), this nomenclature can be used for classification and registration.

An essential tool for consideration of the authors who framed the environmental aspects of product life cycle, service, or process, which is discussed below.

Life cycle of the product or service

The life cycle assessment is a tool used to evaluate the potential environmental impact of a product, process or activity throughout its life cycle by quantifying the use of resources (inputs: energy, raw materials, water) and environmental emissions (outputs: air, water and soil) associated with the system being evaluated.

The life cycle of a product according to the ISO¹ 14040 is "a framework containing the processes, activities and tasks involved in the development, operation and maintenance of a product, covering the life of the system from the definition requirements until the end of their use "[ISO 14040, 1999, p. 2] ⁽⁶⁾.

Until 1997, the lack of an integrated management of waste and in particular the inadequacy of the methods of disposal of the waste itself, based solely on landfill rather than recovery of materials, has made was urgent and necessary creation of new regulations, appropriate to the European standard that would set clear objectives for all stakeholders involved in the life cycle of waste.

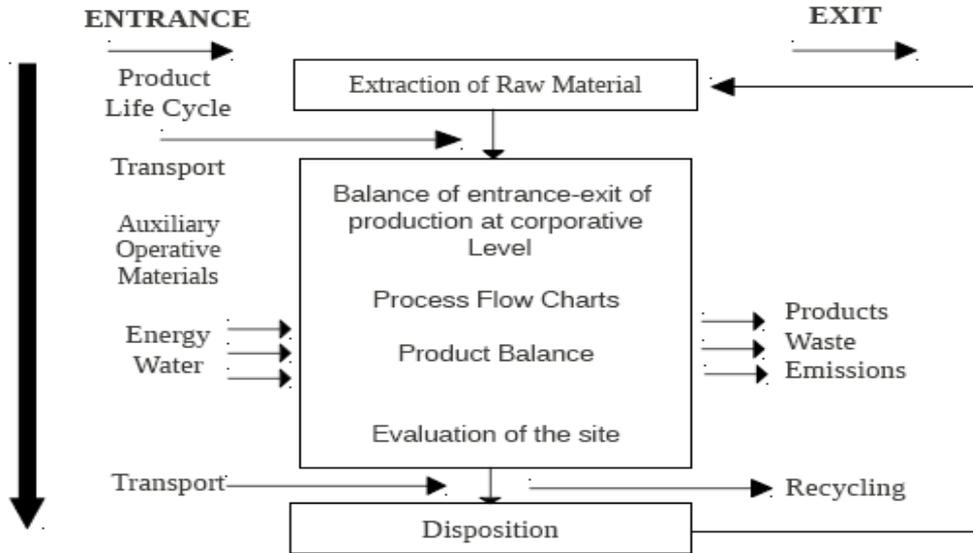
The life cycle analysis and its methodology is therefore an essential tool to achieve cost-reflective prices. This is an analysis from cradle to grave of the impacts and costs of a given energy source, either biomass, solar, nuclear, conventional fossil fuels or other fuel option. The evaluation of life cycle has been applied, for example, for the comparative evaluation of alternative fuels for cars and technologies expected to be available in the near future.

A very special way to observe how the product moves, with its main components and of course available on the Entity Bank, is to make the figure below, where you can track

1 International Standard Organization.

environmental aspects relevant up to the end.

Figure No 1: Assessing the life cycle of a product, considering Business Scope

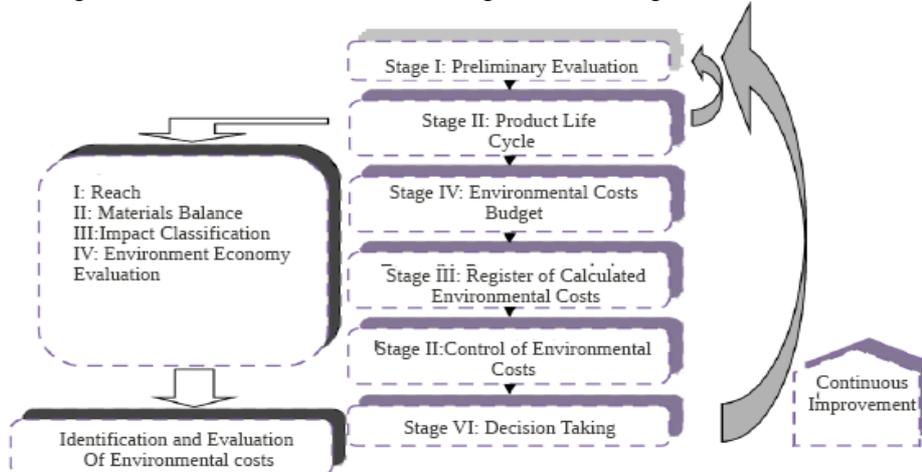


Source: Own Elaboration

As can be seen this figure keeps the elements needed in defining the life cycle, with inputs and outputs for the material balance generation and disposal sites of the major wastes.

With the unification of criteria for the issue of environmental costs there defines as follows a structured process that allows the calculation of these in different industries and organizations, located within the methodologies of analysis at the end of the pipe, as the investment in the plant is finished:

Figure No. 2: Procedure for calculating and recording of environmental costs



Source: Own Elaboration

The following explains the steps to a better understanding (see Table No1).

Table No 1: Explanation of the procedure stages for calculating and recording of environmental costs

| <u>Procedure Steps</u> | <u>Actions</u> |
|-------------------------------|--|
| Stage I | The Entity is characterized, the environmental management system is criticized and analyzed or its existing environmental policy and calculated eco-efficiency indicators (of Consumption, Waste and Emissions and the generic and of participation) according to the characteristics of the entity. This analysis gives an idea of the environmental performance of the entity and its scope. |
| Stage II | Defines the scope of the life cycle, forms the material balance which is no more than the inputs and outputs analysis processes units physical and monetary for one unit of finished product, with emphasis on the outputs that cause impact on the environment. Then they are classified, the impacts (Waste water, Air / Climate, Waste, Noise, Radiation, etc.), and given the activities that are generated at the rate of the outputs that cause environmental impacts are identified and calculated the costs associated with them with the use of established checklists. (Refer to Jasch 2002 Handbook) It is important to spread fixed costs, which are the majority for each product, if there is a great variety, using as a basis for apportionment distribution and waste, or wastewater generated by products and / or services. |
| Stage III | Environmental costs are recorded with the use of subaccounts that extract information from the financial accounting and establishing a extra-books where information is broken down to where one wants. Among some sub-accounts which can be created are: <ol style="list-style-type: none"> 1) Environmental Costs of Waste Management and Emissions or Wastes. 2) Costs for Environmental Prevention and Environmental Management. 3) Environmental Costs for Material Purchase Value 4) of the outputs of the Non - Products. 5) Environmental costs for Costs Processing out of the Non - Products. 6) Environmental Income. These subaccounts were obtained and related with the checklists discussed above. |
| Stage IV | The budget is made based on estimated production and is known as the balance of material the approximate amounts of waste, wastewater and waste generated by a unit of a finished product, because it has a vision of the amount to be wasted, in that sense re-calculations of phase II, primarily with the distribution of costs. |
| Stage V | Is controlled based on the actual waste received, waste and wastewater, prorating the differences, be they favorable or unfavorable in relation to the plan. |
| Stage VI | Begins the process of decision making, which can be focused on process improvement, product utilization, optimization of waste, etc., Framing this process in a cycle of continuous improvement, continuous perfection, hence the feedback procedure. |

Source: Own Elaboration

For a better understanding of the ways to succeed in terms of methodological approach, one presents the most relevant results obtained in the Graphic Enterprise in Cienfuegos in the month of November 2008, where there were major organizational changes, allowing the application of the instrument designed, it is valid also to refer to the procedure which was brought to

discussion by a group of experts on environmental management accounting (12 in all selected with the greatest degree of competition coefficient above 0.90), demonstrating through surveys and using the Delphi method with a valid high concordance of 0.912 through Kendall's W.

Results: Case Cienfuegos Gráfica Company

Cienfuegos Gráfica Company is principally dedicated to the printing of books, magazines and newspapers, for national clients, it has an environmental policy, approved at ministerial level. Following we find the most representative results, for the book, Dos Temas de Redacción.

The collection of information is done through the human resources department in this case it is where the specialist is in energy carrier and environment. According to interviews with the person and observing the production plant, it shows that the main problems facing the entity is the use of paper in its various classes and types, hence defining the most eco-efficiency indicators relating to it at the next table shows, the development of an indicator in each group.

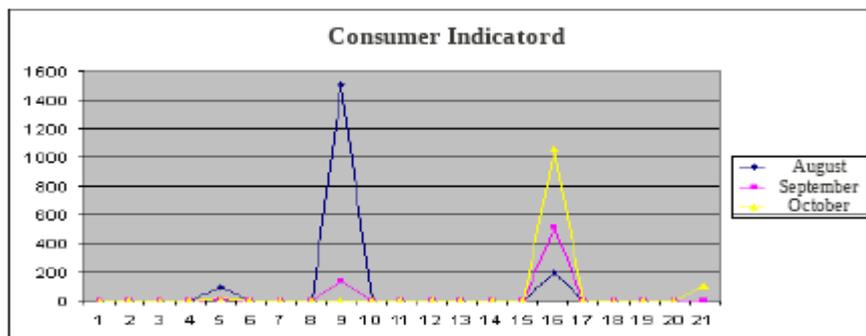
Table No 2: Formulation of some eco-efficiency indicators

| Eco-efficiency Indicators | |
|--|--|
| Consumption Indicators | |
| Gazette Paper intensity | <u>Income of Gazette Paper in Kg.</u> Production |
| Waste and Waste Indicators | |
| Waste and Waste Generation | <u>Kg. of Waste and Residue</u> Production pesos |
| Generic indicators and of participation | |
| Recycling Rate | <u>Quantity of Recycled Residue in Kg.</u> Total Quantity of Waste in Kg. |

Source: Own elaboration

It is important to analyze these results graph by taking a sample of more than 3 months, on average, to demonstrate the variability of consumption norms, determining over or under consumption, as you can see below.

Figure No 3: Diagram of the results of the group Eco-efficiency indicators (Consumer Group)



Source: Own Elaboration

As shown in Figure 3 the peaks in the figure show variations between the Kg of paper types, with the production, since there is a consumption norm for each, they should match the values of the three months in one same point or find themselves close, which shows peaks given points 5, 9, 16 and 21 inefficient uses of the principal raw material which is paper.

Following with the procedure it was performed as the material balance of a process for a product in this case for the book Dos Temas de Redacción in this entity. For said result one mainly uses data sheets or letters of the product technology and observe the complete production process, in order to determine this information per a unit of physical inputs and outputs, then the use of financial information obtained by the accounting department one estimates the value of that material to the amount obtained.

Pass and Inverted Process: photolithography mounting is performed, and then the pass of the image is made to a sheet of aluminum in a chamber through the incidence of ultraviolet rays. Then the development of this plate, using the Revelator EP - 26 to achieve the display of the image. (For each \$ symbol take Cuban pesos (CUP))

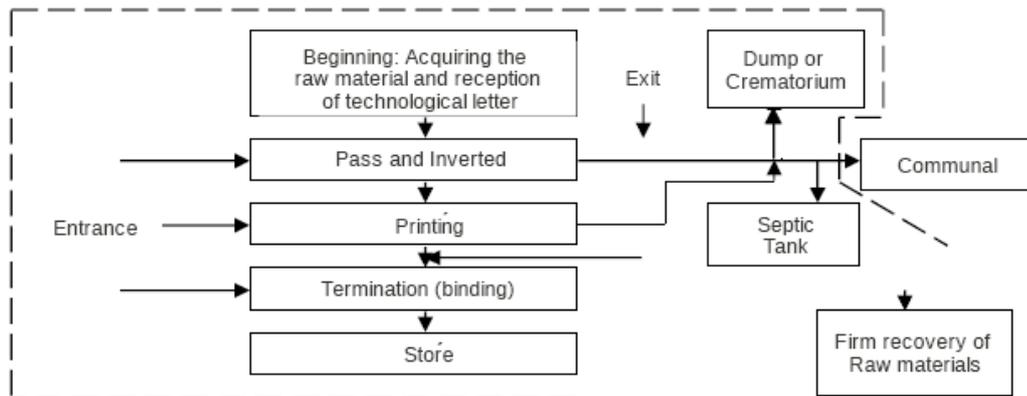
Table No 3: Review of Pass and Inverted materials process

| Inputs | Process | Outputs (Environmental Impact) |
|--|-------------------|---|
| Sheet 0,018 u \$ 0.165 | Pass and Inverted | Sheet cutting 0.0001u |
| Sheet Developer 0.003 L \$0,0017 | | \$ 0.00091 |
| Pure water 1 L \$ 0.0004815 | | |
| Gum Protection 0.000084 L \$0.0037 | | Photolithography Trim 0.00000018 \$ 0.000074 Kg |
| Synthetic sponge \$ 0.0013 0.000045 u 0,0013 | | Wastewater 1 L \$ 0.0004815 |

Source: Own Author Elaboration

With the results of Material Balance one observes that the main waste products are aluminum sheet cuts and cuts of photolithography films and the observation and interviews with producers directly determines the life cycle in a graphic way that can be seen below in Figure 4. This shows the relationships between the processes of the plant and the main destinations of the waste and scrap.

Figure No. 4: Lifecycle common to products of the month



Source: Own Elaboration

In the Economic- Environmental Assessment one is able to determine costs which are most relevant in terms of environmental media and in the major disposal sites.

Using checklists defined by the UN in 2002 one tries to determine the costs associated with the main Waste, Disposal and emissions, according to the elements described and the products, the following example shows the solid waste category. It is valid to note that the environmental costs come to light through the screening by interviews and direct observation through a multidisciplinary environment specialist team, the main accountant and the plant manager of the entity, arising from this analysis purely environmental costs such as recycling workers' wages and of the material purchase value of raw materials that end up as waste (different paper types and classes), but there exist other costs such as wages of the gardener, one of the activities which he does is the collection of wastes, but it is not his only job, so it is necessary to determine the portion of that salary pertaining to environmental action. Thus it is necessary to know how much time this man devotes to the plate waste collection, the average collection is done once a week, but the

most accepted is the value that is related to working hours for that activity, determined by mathematical expectation, which is expected to be that the plate waste collection is approximately 5.2 hours, multiplied by 4 weeks of the month, then it would be 20.8 hours, this value is multiplied by the wage rate of \$ 1.25 / h means that the gardener's salary expense related to the waste collection plate is a total of \$ 26.00, then determining the amount of scrap by the process of material balance yields one obtains the unitary amount per book Dos Temas de Redacción of 0.00432 Kg for a monetary measure of \$ 0.16636. (Note that Table 4 shows the three products made in the period, to make the apportionment, but focus on the Book Dos Temas de Redacción).

Table N° 4: Calculation of the total of waste product and the monetary value, per waste cut from aluminum

| Communal | Unitary | | Total (Unitary x Quantity) | |
|--|--|------------|-------------------------------|------------------|
| | Book Dos Temas de Redacción (Quantity 1190) | 0.00432 Kg | \$0.16636 | 5.141kg |
| Gymnastics Book and Rhythmic Education (Quantity 30200) | 0.0044 Kg | \$0.167 | 132.88kg | 5043.40 |
| Mountain Newspaper (Quantity 2500) | 0.00442 Kg | \$0.1675 | 11.05 kg | 418.75 |
| | | | 149.07 kg | \$5660.12 |

Source: Own Elaboration

Then:

$$\text{Gardener's expense rate} = \frac{\text{Salary Expenses}}{\text{Quantity of waste and - or refuse}}$$

$$= \frac{\$ 26.00}{149.07 \text{ Kg}} = 0.174 \$ \text{ Kg}$$

Table N° 5: Gardener Salary assignation related to the environment of each product

| Gardener salary assignation to each Product | | | | |
|--|-------------|---|----------|---------|
| Book Dos Temas de Redacción (Quantity 1190) | 0.174 \$/Kg | X | 5.141kg | 0.89 |
| Gymnastics Book and Rhythmic Education (Quantity 30200) | 0.174 \$/Kg | X | 132.88kg | 23.18 |
| Mountain Newspaper (Quantity 2500) | 0.174 \$/Kg | X | 11.05 kg | |
| | | | | \$26.00 |

Source: Own Elaboration

One of the procedure demands is that each product and-or service assume the part of the environmental cost it produced, that is why the importance of the previous assignation, is so.

Following observe the general consolidate of the environmental costs, resulting in these checklist applications.

Table N° 6: Presentation of environmental costs in the category of Solid Wastes according to the UN definite Checklists

| Costs Category-Environmental Cost | Wastes |
|---|--------------------|
| 1. Treatment of wastes and emissions | |
| 1.1 Depreciation of related equipment | |
| • Depreciation of ZIL Truck | \$ 30,60 |
| 1.2 Maintenance and operative materials and services | |
| • Tools for Auxiliaries | \$ 44,20 |
| • Transport Costs | \$ 13,61 |
| 1.3 Personnel | |
| • Waste Transport Salaries | \$ 36,59 |
| • Cleaners Salaries | 500.00 |
| • Gardener's Salary | 26.00 |
| • Recycling Workers Salary | 656.,4 |
| 3. Purchase value of output materials of non-products | |
| 3.1 Raw Materials | |
| • Raw Materials purchase value that end up as waste | \$ 357556,63 |
| 3.3 Auxiliary Material | |
| • Auxiliary material purchase value (gauze) that end up as waste | \$ 7,97 |
| ∑ Environmental Expenses | \$ 35872,24 |
| 5. Environmental Incomes | |
| 5.2 Other incomes | |
| • Incomes for sale of materials for new use or recycled, (paper, packing, plastics, glass, biological wastes) | \$ 694,86 |
| ∑ Environmental Incomes | \$ 694,86 |

Source: Own Elaboration

When budgeting and controlling the environmental costs of Gráfica Cienfuegos, one saves due to environmental costs, \$4491,04 of that \$493,05 related to the book Dos Temas de Redacción, and only in the following month, after carrying out the procedure, result of the decision making process, where one rules a supervision on the sheet and the paper, using better paper formats according to the book which is wanted to be printed, thus reducing the purchase value of the raw material which ends up as waste, as implementing the sale of some sub-products to the Enterprise of recovery of raw materials of the province, thus generating income for the entity. It is important to highlight that of the total of environmental costs, as seen in the previous table, only 1.35 % of them are really produced by the book, Dos Temas de Redacción, an element unknown by the entity, for when accumulating these costs in general and administration accounts, all the

products assume the same amount of costs, this not being real, so the improvements are led towards the processes of the other two products, which generate, the 98.65% of the total environmental costs of the entity, in the months analyzed, November 2008.

CONCLUSIONS

1. The proposed procedure permits to calculate and control the environmental costs in Gráfica Cienfuegos.
2. One manages to give environmental costs to each one of the analyzed products, determining a total of \$ 358872,22 according to the environmental categories incurred of Solid Wastes and Residual Water, of these costs the ones which more influenced, were those of exit of the non-products and the salary of personnel, re the environment activity.
3. One proposes a possible way to register the environmental costs based on sub-accounts, according to the definite accounts, without contradicting the accounting systems en force in our country, because an extra-books register, is created.
4. The products life-cycle is defined, showing that one considers a very useful tool, to manage the costs re the environment within the Enterprise.
5. One recognizes, that there is a latent problem, even in the diversity of criteria to classify the environmental costs.
6. Following the idea that cost is used to make decisions, planning and control, the procedure allows budgeting and favoring the decisions making, frame worked in a process of continuous improvement.

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