

Recycling of industrial waste and its impact on the environmental quality costs

Dr. Nasreldeen Gidam Elnagy

Majmaah University Saudi Arabia

Abstract- This research aimed to highlight what is the importance of environmental accounting and the recognition of environmental quality costs of industrial facilities ?, and where operations and production produces waste need to take measures including disposal of this waste operations ?, and how to discharge , either dumped or incineration or landfill or drown in the surrounding environment without incurring any material reward for this: leading to causing damage can accumulate and become great in the end, so there was a need to reconsider how to get rid of them by recycling the waste so as to diminish the claim by communities to download contaminated facilities more environmentally responsible by the costs to the environment spontaneously. We will address the budget proposal, including the number of industrial environmental costs: and make arrangements for after rooming directives management usually are as follows: -

1 target / plan for the annual production (product types and volume of products).

2 / light that determines the expected output and the cost of materials used in production quantities.

3 / also specify other direct and indirect costs and overhead costs as the volume of activity.

4 / The competent authorities of the environment based on the development of appropriate financial estimates for the work of research and development and mechanisms to measure damage to the environment and the fight against environmental pollution and all the necessary protection of the environment within the annual budget of the company until the adoption and exchange them when the lieutenant.

5 / then calculates the cost per unit produced and the profit margin is added to determine the selling price to determine the overall size of the company's profits during the year to achieve This budget is a road map for each company's products are the clarification of proceeds of the sale and the cost of production and the size of the more profitable overall also shows where production costs and other service departments and the costs of marketing and the costs of environmental quality costs taking with which the size of the proceeds from the recycling and participation in reducing the environmental cost of size and then find the net estimated to achieve profits.

In this section also will run the most important aspects of accounting, through which the researcher suggests model helps to incorporate environmental costs in the financial statements and also lists industrial costs and the size of the participation of recycling in the budget.

I. OBJECTIVES OF RESEARCH

There are several reasons for the interest in the quality of environmental costs, including the following:

1. Environmental costs are the cost of the quality of high-value, in addition to the rapid and high growth.

2. Considers environmental costs typically vague and difficult to account.

3. Additions environmental costs of polluting industries to indirect costs, so must accountants distribution of these costs more fairly on activities causing pollution.

4. Increase awareness that led to the social and legal claims to the statement of account and environmental costs and the quality of disclosure.

5. The importance of accounting reports preponderant feed, provide management with information that helps to identify the inputs, processes and outputs, and determine the pricing system.

6. The attic is the recycling of industrial environment is of great significance in reducing the costs of environmental quality waste

7. As this study focused on the types of costs are several types of environmental pollution, for example, but not limited to: air pollution, and pollution chemical, and water pollution, noise pollution, pollution and visual pollution, radioactivity ... etc., so seeks accounting for environmental work estimates of costs and benefits efforts associated with them.

Environmental costs are divided generally into an environmental direct costs and indirect environmental pollution resulting from the work of the facilities.

The cost of environment-related categories based on versions of the International Federation of Accountants is represented as follows (IFAC, 1998):

1. Purchase of natural resources such as costs, water and other materials that are converted to products.

2. The purchase costs (and sometimes treatment) energy, water, and other materials that become a production output, not the product (irregularities and emissions).

3. irregularities and emission control costs, including the costs of eating, processing, and disposal of irregularities, emissions and costs of reclamation, and compensation associated with environmental damage, and any costs to comply with legislation Decontamination.

4. The costs of prevention and other environmental management costs, and include preventive environmental management activities such as, projects and plans for cleaner production. It also includes administrative and environmental activities and other costs such as environmental customization,

systems and environmental measurement, environmental and communication, and any other appropriate activities.

5. Research and development costs, including research and development projects related to environmental matters costs

6. Costs less visible (less tangible costs), and include both internal and external costs associated with the matters at least visible. Examples include bear legal responsibility, and future legislation, and the company's image in front of the community.

Also focused on this study, the objectives of environmental accounting that the pollution impact is not limited to a specific environment or even on a given territory itself, but up the whole world to cover the impact on the level of global environmental variables, for example, the ozone hole and global warming, and the erosion of tropical forests, the consumption of petroleum, and freshwater resources.

If the environmental accounting application in enterprises - including private industry - positively affect the economies of the countries and installations itself and its reputation, it also includes a statement that there are positive effects of this particular with regard to the level of productivity application. I have discovered facilities that improve efficiency in the use of energy, water and other raw materials leads not only to environmental improvements (reduced use of resources, and reduce emissions of harmful emissions), but also lead to saving money significantly, due to the decrease in the purchase of raw materials and waste treatment costs.

II. HYPOTHESES

1 - The concept of environmental quality costs a significant impact on the manifold on the lives of individuals within the industrial companies and thus can achieve quality by adding the yield of recycling of synthesizer's industrial environment

2 - Accounting Measurement more convenient to measure the environmental quality involving several aspects of the costs should be taken into account. It is quantitative, financial and descriptive side. Especially in companies that practiced with negative environmental impact and clear activities

3 - Cost accounting concepts from within the system, which must be exercised on the activity within companies Industry

III. SUGAR BIO PRODUCT IN SUDAN (ETHANOL PRODUCT)

Until now, the only plant that produces bio-ethanol in Sudan is Kenana factory in White Nile State 340 kilometers south of Khartoum state, was inaugurated in the (April 2009).

A study prepared by the Kenana Sugar Company that the productive capacity of fuel ethanol from sugar projects currently at about 110 million liters per year in the near future, will produce them Kenana alone, 65 million liters in the Sudanese Sugar Company produces 45 million liters, according to the study, «Sudan has capabilities and the potential for scientific and natural qualify because assume an advanced position in the field of global production of biofuels. And the availability of the sugar cane crop in vast areas of the country, in addition to future projects for the production of sugar, provides inputs to the industry ». And when the quantities produced, which is estimated at 110 million liters at the global product account shall be

effective contribution as Molas is within the industrial environment residues

Environmental cost information

Environmental costs as "identifying and quantifying the costs of environmental activities and supplies, and use that information in making environmental management decisions, in order to attempt to mitigate the negative environmental effects of activities and regulations."

As well as the environmental cost information in addition to the existing cost accounting procedures, or make the registration of environmental costs is an integral part of them and customize the processes and products net worth has been referred to the environmental cost accounting as a new accounting or green accounting (Green Accounting).

Environment when some researchers as "a system that includes all living things and the physical environment", researchers have known contemporaries environment as "the environment in which neighborhoods to live, composed of the earth, and its atmosphere, and it and the interior"

There were also other concepts:

1. Environment-in-law as a "biosphere, which includes living organisms, and the promise of resources and surrounded by air, water, soil and human hosted facilities

2. The environment in the economy as consisting of two foundations, industrial concrete element such as buildings, roads, machinery and equipment, and the element of industrial intangible such as laws and economic and political systems.

3. Intended environmental accounting as "a system for the production of information on the environmental performance and economic unity benefit stakeholders to make decisions, and that this accounting is a satisfactory response to the need for stakeholders in the unit to the same environmental dimension Information on the one hand, and in response to the effects of legislation on the organization of activity on the other hand "it is clear from the above definition that environmental accounting system, designed to provide information about the unit or facility helps to control it, and ensure that it fulfills its responsibility towards the environment efficiently.

4. The concept of environmental management accounting as is "that identify, collect, assess, analyze and work of the internal reporting and to provide information about the flow of materials, energy, and information related to environmental costs, and any other information relating to the adoption of environmental and traditional-making within the organization."

5. The concept at the Fifteenth International Conference of the International Organization for Control and Auditing environmental audit as "control the implementation of environmental programs by governments, and control their response to international commitments signed by" can be environmental review includes all the control patterns, and if policies or programs to control not available, it can SAI use financial control to sow awareness of the importance of environmental issues.

The concept of environmental pollution Environment Pollution

1. Pollution is "corrupting the components of the environment, so that the turn of useful elements to harmful

elements, the impact of the loss-making in life, and often this is due to human through neglect or misuse."

2. Pollution is "the accumulation of harmful elements and undesirable"

3. Pollution is "the introduction of materials or energy in the environment by human and which are the cause of human exposure to health risks or harm living materials and ecosystems or damage to buildings or areas to enjoy, or interfere with the proper uses of the environment"

4. Pollution is "one of the outputs of production and consumption activities."

(A) That the pollution is caused by materials and energy and is considered one of the outputs of production and consumption activities.

(B) That the pollution has created a source or sources of human and therefore it represents an increase added by the human environment.

(C) That the pollution causes effects or damage directly or indirectly, of living organisms and the aesthetics of the environment.

(D) The seriousness of the pollution linked to the vast human resources and ecosystems its effects.

(E) That the pollution is not subject to control parties damaged, but can be subject to the control causing the pollution or third party activities (such as government).

And it can be for the researcher to know the pollution that cause a change in the environment that surrounds the organisms by nature and by the daily human activities which lead to some output that do not fit with the place in which the organism lives and lead to the emergence

Third: The sources of environmental pollution

Ecologists believe that the pollution sources and are intended to factors that are emitted from volcanoes and natural gas, which is made up in the air and gas

First Source: natural factors, the naturally occurring ozone, dust, and other natural resources, and with no income for a person out.

The second source: human factors, the factors that have rights is the main reason for the creation of pollution and ecological imbalance in the balance by the irrational use of the components of the ecosystem, and the impact of human factors on the environment in general and air pollution has increased particularly after the Industrial Revolution.

The effects of environmental pollution and risks

1. Increase the curative and preventive expenditures, and low GNP.

2. The impact on natural systems agricultural and fisheries productivity

3. The destruction of resources (such as soil, forests and water), the impact on the availability of economic resources and economic activity of the individual.

Social effects of environmental pollution:

1. Damage to public health.

2. uneven distribution of welfare where the damage is done and the biggest burden on low-income groups, and the damage caused by environmental pollution and destruction of humans,

plants and animals, are not taken into account as one of the elements of well-being

3. The low visibility and thus the high proportion of incidents by - and treatment of this leads to an increase in industrial lighting costs.

Increase the costs of cleaning and repairing the damage to buildings and real property

IV. RECYCLING OF INDUSTRIAL WASTE AND ITS IMPACT ON THE ENVIRONMENTAL QUALITY COSTS

Recycling of industrial wastes exist since ancient in nature, industrial wastes are food for some animals

Since that identified the communities to environmental problems, many countries have taken action to recover the waste, as well as limit the spread of hazardous waste,

1. - Protect natural resources

2. - Create new jobs

3. -Protection of Nature and the economy in the raw materials.

However, there are also downsides, such as

The cost of labor: as industrial waste conversion, requires sorted by the quality of the conversion, glass materials, glass... etc.) and thus into the hands of many working, and even if there is an initial screening by the population (i.e. specialized containers to throw some kind of waste), the second count in necessary to get a good sort of the types of waste audit centers (plastic, glass, etc.). The additional burden for this process is usually the responsibility of municipalities and local communities, and thus the need for a fee to throw some waste.

Industrial waste management is monitoring and collection, transportation, processing and recycling of process or dispose of industrial waste, commonly used this term for the waste produced by human activities, states in this process and are to mitigate the negative effects of waste on the environment, health and general appearance. This process is also used to get the resources and the recycling, can include waste solids, liquid and gaseous radioactive materials processing

Waste treatment between developed and developing countries, and between urban and rural areas and between residential areas and industrial zones vary.

Non-hazardous waste treatment or population in major urban areas are usually the responsibility of the local government authorities, while the non-hazardous industrial and commercial waste treatment are usually the responsibility of the waste generator any product.

Recycling steps

Waste sorting: is the most important stage in the recycling where required to obtain a good quality of industrial materials well screening for domestic and commercial waste; because this material loses its properties in the event of presence of impurities than other types of materials, and requires sorting big labor, including creating many job opportunities.

The industrial waste collection and sorting in many ways, including: assembled houses, shops and sell them to the nearest scrap, or to the buyer of scrap roaming the streets, or collected by scavengers in garbage dumps.

Washing: Wash industrial materials are textured caustic soda, or liquid soap plus center

The hot water, where recycling requires that the material be free of industrial fats and oils and UFOs.

Waste Management - is the control and collection, transportation, processing and recycling of process or waste disposal countries in this process and to mitigate the negative effects of waste on the environment and public health and appearance. This process is also used to get the resources and the recycling, can include waste solids, liquid and gaseous radioactive materials processing.

Waste treatment differ between developed and developing countries, and between urban and rural areas and between residential areas and industrial zones

Re-biological waste recycling

Is the process of recycling organic materials such as plant and food waste and paper products, it can be recycled into compost and biological which is used in the biodegradation processes in agriculture. Gas output from this process is methane gas which is used in the emitted power. The purpose of this process is to accelerate the decomposition of organic materials. Biodegradation different ways there are aerobic and anaerobic There hybrid routes between the two previous methods.

Energy recovery process in Germany: direct waste can be used for fuel can also be re-processed to obtain another type of fuel.

The conversion of solids, liquid and gas-to-energy through steam generation and thermal transformation and turbines. It can also be carbon.

Waste minimization to reduce consumption

The most important way to reduce waste is to reduce the production of these wastes, including the use of used products, and repair broken instead of buying new ones, and the use of the bags are multi-use cups instead of plastic and disposable, and the design of products by producers a way to facilitate recycling.

The most important way to reduce waste is to reduce the production of these wastes, including the use of used products, and repair broken instead of buying new ones, and the use of the bags are multi-use cups instead of plastic and disposable, and the design of products by producers a way that facilitates recycling

Waste of collection and transportation

Methods of waste collection between cities and states vary, and this service is often provided by local or by the private industrial sector and government authorities. In Australia the government follow the method of waste collection by the way is

provided for each home three garbage containers: one for the materials recyclable and one for organic materials and one of general waste.

In Europe in buildings where there are channels of garbage to pay down the buildings where there is a large content of garbage called this method

In Canada, the government follow the method of waste collection by the way also apply three garbage container system in most areas

In Taipei, the government is imposing taxes on household waste volume and achieved this way in order to minimize the volume of waste in the country

Awareness and education

Education and awareness in the field of waste processing is constantly growing because of the accumulation of waste, air pollution and the hole of the ozone layer and the depletion of natural resources and emitting poisonous gases and the spread of rodents in the accommodation, so it was declared, which carried out a number of universities through the establishment of good administrative Studies environment and programs waste.

Several ways to retrieve useful materials from solid waste and re-use them are available, and these ways: magnetic sorting where waste placed on the conveyor belt is exposed to a magnetic material to attract removable magnetic attraction metals. And sorting antenna where waste is isolated by density and size, and throw the waste into the air to be isolated similar materials by tossing distance. As well as the waste is isolated as components for remanufacturing after composting, where old cars returned to the iron and steel factories, broken glass to glass factories, timber plywood factory, old papers and waste cellulosic to the paper mill, plastics waste into plastics factory, aluminum cans, and waste membership to the unit power generation and bio-conversion (compost). And can take advantage of waste grease in soap and candles and lubricating oil industry. It follows from the bones, grease, feathers after being processed as food for animals. And can take advantage of cutting home furniture in large-size re-use and transport by specialized companies or individuals.

Waste retrieval or recycling existing since ancient in nature, wastes some organisms are considered food and other living organisms, has practiced human waste retrieval process since the Bronze Age, where he dissolves the metal material to be converted into new tool

| <u>The scope of activity</u> | <u>Activity</u> |
|--|--|
| Required to obtain permits and approvals for the production of products that have environmental impacts, but within the limits of legal allowances efforts | Obtaining permits and approvals |
| Efforts and resources necessary to provide those responsible for the operation of pollution control devices individuals, as well as spare parts and other supplies to complete the maintenance operations. | Operation and maintenance of pollution control devices |
| Efforts to measure and test the waste or the result of operations and analysis to make sure no water, air, waste or polluting emissions pollution. | Measure the degree of pollution |
| Efforts and resources necessary to train workers to deal with the degree of contamination and provide training materials and training places | Training |
| Efforts to store harmful and flammable solid waste and compressed gases and measure materials storage areas until the disposition, as well as the disposition of the emissions that harm the environment | Waste storage and disposal |
| Efforts are needed to develop environmental plans and resources | Environmental planning activities |

Notes from the previous figure that the performance of each activity of the previous activities involves taking some kind of expenses or cost for this activity, and therefore must strive for environmental costs reduced by excluding activities that do not

add value to the product, but environmental damage occur classification of environmental activities that add the value of the product

Environmental cost Processes report

| The project | | The local Environment | | Statement |
|-------------|-------|-----------------------|-------|---|
| Partial | Total | Partial | Total | |
| | × | | × | A / financial cost of the damage |
| | × | | × | The cost of equipment |
| | × | | × | The cost of buildings |
| | × | | × | Agricultural crops damaged |
| | × | | × | Has a production capacity |
| | | | | Lost livestock |
| × | | × | | The total cost of the physical damage |
| | | | | B / human cost of damage |
| | × | | × | Remedial costs |
| | × | | × | Manpower costs pinned in the treatment period |
| | × | | × | Early delegation costs |
| × | | × | | The total cost of human damage |
| | × | | × | |
| | | | | C / Total depreciation environmental assets |
| | | | | The total cost of environmental processes |
| × | | × | | |

Researcher finds that the cost of operations Environment Report includes the following:

A) Accounting information and data relating to cost being borne by each of the project and the surrounding environment as

a result of the exchange of environmental processes among themselves.

B) What endures the project of human and material damage during production processes, either cost described

In the box to the environment surrounding environment are for the value of the societal burdens share the wealth and property of other parties and may be caused by the project.

A) The depreciation environmental assets, contain premium annual depreciation of machinery and equipment protection software environment. Through experiments that there could be a net or environmental return and

List (report) the results of Environmental Processes for the period Ended

| | | | | | |
|-------------------------------|-----|-----|-----------------------------------|-----|-----|
| Net economic profit | | x x | Internal environmental costs | Xx | |
| | | | Physical damage | x x | |
| | | | Human damage | | |
| Provided in the environmental | | x x | Depreciation environmental assets | xx | |
| | | | Net economic profit | | x x |
| external costs | | | External environmental costs | x x | |
| In physical damage | | | Physical damage | x x | |
| In human damage | xxx | | Human damage | Xx | |
| Net Loss environmental | Xx | | Net yield environmental | | x x |

This figure above researcher believes that the impact of the investment costs of Environmental financial statements published information considered financial statements published the most important tools and means of communication accounting where are all the way delivery of information and data on business projects for the owners attention of the shareholders, creditors and lenders or bondholders government and relevant bodies (such as taxes)

The accounting disclosure about the performance of economic units in the field of protecting and conserving the environment (and sometimes called social disclose) must be in the form of lists, reports and attachments provide information about the financial position and income-generating activities pollution control budgets estimated capital and operating these activities reports of these activities, the proportion of investment spending and operational and the company's net income. Disclosure Social Corporate Social Disclosure can be defined as the provision of financial information and non-financial related to the interaction of the organization with the physical and social environment either mentioning within their annual reports or special events With details about the environment in kind Physical Environment, energy, human resources, products and issues related to the community and through the studies it is clear that the obligation to disclose Responsibility environmental highest in the United States and Britain.

As measured by the accounting disclosure about the environmental performance of companies in the field of pollution control and contain information on the expenses and the costs and performance indicators activities required to combat environmental pollution and disclosure in the form of lists and reports supplement or attachments annual company financial statements, and must include the disclosure of the following:

1) Financial statements to separate the activities of pollution control.

2) Discretionary budgets for capital and operating costs and expenses of running anti-pollution activities.

3) A statement of the kinds of production of harmful residues and maximum rates of contamination.

4) A statement of the issues uploaded on the company by those affected by the pollution.

5) Social performance report of the activities of pollution control.

6) A statement of the expected environmental obligations as a result of environmental pollution and the estimated costs to contend with the details of the current and capital.

7) A statement of the company's activities in the field of pollution control.

8) A statement of the proportion of spending on pollution control activities to the total capital of the company expectations.

9) A statement of operating expenses for the activities of pollution control to the net income of the company.

The financial statements include the company's environmental cost data (private investment) achieves utilitarian financial statements and this information available utilitarian if the following conditions are met:

1) The decision-maker's ability to trade-offs between different decisions.

2) to be a trade-off between decisions based on the expected utility.

3) Taking into account the value of the expected probability of benefits.

4) decisions that are arranged according to their utility for the decision maker because the investment costs directly related to environmental sustainable development.

Researcher believes that the most important ingredients of disclosure about costs environment of the facilities and the most comprehensive disclosure requirements:

1. minute metrics that identify environmental costs to get to the complete picture, and qualitative characteristics that provides

all aspects related to environmental performance and accurate information for the programs and plans of information and the size of the implementation aggravated even more credibility.

2. always be a report explaining the plan to target established for each environment since the costs of construction

and during operation and explains all the expenses of environmental performance and environmental disclosure is detailed for each facility services to the environment..

Proposal to add revenue Investment environmental and recycling industrial environmental costs

| <u>Environmental costs of industrial company</u> | | | | |
|--|---------------------|------------------------------------|---|-------|
| Amount disbursed | The amount invested | Implementation details and effects | Data | S. No |
| Xxx | | | Environmental costs to reduce the environmental impacts resulting from the production and activity of the service | -10 |
| | | | Details 1/2 the cost of environmental protection / total cost of the environment 3 / trading cost of resources | |
| Xxx | | | The cost of the environment in the first production, etc. - | -2 |
| Xxx | | | Environmental costs and other administrative activities | -3 |
| xxx | | | Environmental costs in research and development - | -4 |
| xxx | | | Environmental costs in social activities | -5 |
| xxx | | | Costs of environmental damage - | -6 |
| | xxxxx | | Total amount invested during the period | 7 |
| Xxxxx | | | Total amounts of research and development for the period | 8 |
| | xxxx | | Return value of item 1.3 | 9 |
| 14,100,000 | Xxxx | | Return value of item 2 | 10 |

The figure shows preventive environmental costs to prevent environmental pollution including water, air, noise, odors and soil, climate change and other environmental change after obtaining the final outcome of the list of environmental costs and the grounds revenues Investment environmental and recycling and other revenue, add this result to the list of gains and losses

V. THE RESULTS

This research concluded that a number of results on the basis of the application of environmental quality cost accounting and moving here to the concept of environmental accounting year and the concept of threads to more privacy in this area, namely: the recognition of cost and environmental how the accounting treatment of these cost and reporting.

This research consider the benefits of implementing environmental costs of the quality of accounting at the multi-stakeholder, whether internal or external increasing attention to the environmental performance of the facilities, and examples of the owners of internal interests, staff and in particular those affected by pollution directly in the work environment, either

external stakeholders, for example, does not limited to, the communities that are affected by local pollution, and groups interested in environmental activities, government agencies and regulators, along with the investing public

VI. RECOMMENDATIONS

1 / To be industrial wastewater resulting from the sugar industry water treatment specifically as an example of agro-industries and the remnants of Ethanol as one of the industry to recycle waste and utilized in any of agriculture as it is now in Brazil and other countries.

2 / The use of the remnants of the food industry and turn it into animal feed. And processing of farm waste in industrial companies

3 / Processing of agricultural waste to produce economic returns products such as wood panels and paper

4 / More efforts and spend money to protect the environment and also mandated to address the environment from pollution and chapters, and future costs of plans and programs for the future and planning and the costs of training for workers in the field of

the environment and the costs of research and development of health in the field of environmental quality.

5 / This is the scope of the existing plant area or industrial facility, but the scope of the state and the world must work on the use of resources to good use and also reduce the risks of floods and reduce wastewater treatment and re or industrial waste and other treatment.

6 / Recycling of waste, which reduces the financial expenses in environmental sanitation and drainage also must train employees in environmental rehabilitation and also spending on research and development and planning the future to reduce the environmental damage and also financially insurance on it

REFERENCES

- [1] Jasch C. "Environmental management accountant procedures and principles) (United) / (2001)

- [2] Nation division For Sustainable Development United Nation New York).
- [3] Environment Canada "Introduction Guide to environmental accounting Ohawa 1997.
- [4] Environmental issues in financial reporting London 1996
- [5] Management accountants of Canada "Tools and techniques of environmental Accounting" Ontario 1996
- [6] Procedure and principles New York 2001.
- [7] Institute of chartered accountants in England and Wales
- [8] United Nations Conference on trade and development accounting and • financial reporting for Environmental cost and liabilities" New York Un publication 1999 EC 2001.

AUTHORS

First Author – Dr. Nasreldeen Gidam Elnagy, Majmaah University Saudi Arabia