

Recycling and cleaner production: an integrated environmental responsibility and development

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Abstract:

Caring about environment is no longer volunteering in society for a specific time or place, but rather a duty and necessity required by the economic activities of institutions and a priority within decisions and legislations as well as daily behaviors of members of society. Both cleaner production and recycling are based on protecting the environment and reducing or eliminating pollution, so cleaner production is a continuous application of preventive activities that include manufacturing, marketing and service operations. These activities aim to increase efficiency and reduce risks that threaten the environment. Recycling of various wastes has been used as aspects of adopting environmental responsibility To achieve several benefits like financial returns and reducing pollution for both institution and environment, cleaner production and recycling are a purposeful activity to reach a society with environmental behavior and healthy environment.

Keywords: cleaner production; Recycling; Environmental responsibility; Development.

Jel Codes Classification : Q52, Q53, Q56.

1. INTRODUCTION

Environment is basis of existence of every institution, life and a human being continuation, For the sake of continuing for every human being in this environment, efforts must be made by each party for the safety and security of the surrounding environment that would achieve the safety and health of everyone who lives in this environment by its different forms. One of the simplest human concerns to preserve the environment is to reduce family household waste in addition to reduce institutions' waste, which falls within the framework of reducing pollution or used what is produced from waste or garbage to get its benefit from several aspects, and ways were found that would lack waste from its source that means any products that do not cause pollution this is the basis of what is called cleaner production, as both recycling and cleaner production have become directions that assure protection and security for the environment, depending on these directions by consumer, producing institution and legitimate government assure the protection of the environment as preventive and therapeutic protection at the same time.

2. Cleaner production:

The basic emergence of this term due to the great interest in finding the best solutions for a natural environment protected from various institutional waste by making this waste hidden from existence or production with no waste.

Many institutions have sought to adapt their products with environmental protection's requirements which leads to reduce environmental impacts and this helps in the emergence of the term greening business. (Daden & Hafsi, 2019)

The term of greening business was a primary form to access to what we call today cleaner production. So that institutions seek to find products or activities take the green color indicating that they do not harm the environment and they do not cause any form of pollution.

several definitions of CP have been found, including the following:

- Cleaner production means the continuous application of an integrated strategy to protect the environment by operations, products and services in order to increase efficiency and reduce risks to humans and environment. (www.ee.aa.gov.eg/portals.)
- Continuous development in industrial processes, products and services in order to reduce the consumption of natural resources, preventing air, water and soil pollution at source, and reducing the amount of waste generated at the source, in order to reduce the risks to humanity and the environment. (Mazreik, 2011)

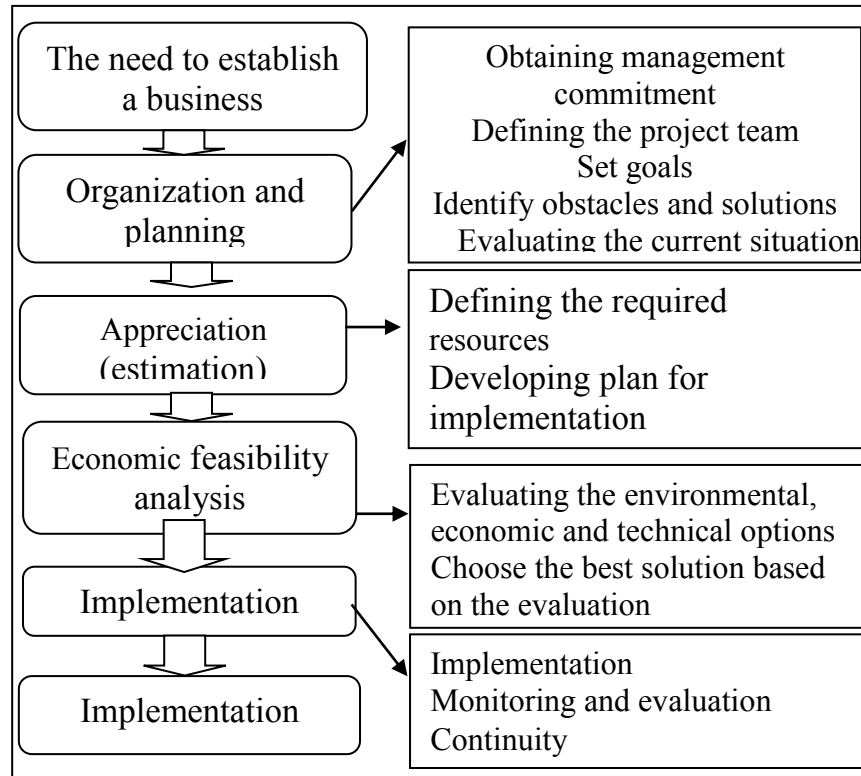
From the aforementioned definitions, we conclude that cleaner production aims to reach production without waste that is harmful for the environment, through this, cleaner production can be defined as the direction adopted by institution in managing its activities to achieve production without where its product is not harmful to the environment, before or after use by the final consumer.

We point out that there are many institutions or governments refuse to embrace cleaner production on the belief that it is costly in its procedures and operations, but "cleaner production does not necessarily means that it is expensive, cleaner production can include some procedures

without or low costs, so cleaner production can be applied by all institutions with all sizes and must be applied in developing countries”. (www.ee.aa.gov.ea/portals.)

Cleaner production depends on a methodology with successive steps, which we explain through the following form:

Fig.1. methodology of cleaner production



Source : (Industrial Development Administration, 2017, p. 19)

Figure 01 clarify that the success of each stage depends on the success of the previous one. Each of these stages involves a sub-stages to achieve the completion of the basic stage of the CP methodology.

The adoption of cleaner production by industrial enterprises targets a set of results, as we define among these objectives the following: (Musa & Rahmane, (2008), p. 86)

- Reducing the pollution of environmental elements by making continuous improvements to the organization's activities, goods / services.
- Continuously adjusting methods, operating plans and industrial processes, and updating the technology used continuously.
- Waste separation, classification, recycling and recovery of raw materials, chemicals and energy.
- Protection of human health and the environment.
- Avoiding the occurrence of waste and emissions (or reducing them to a minimum), especially toxic and dangerous ones.
- Rationalization of exploitation of natural resources and energy to the Optimum level.
- Achieve higher levels of quality, production and material profit.

The main obstacles to applying the CP approach: (Industrial Development Administration,

2017, p. 27)

Despite the advantages of applying cleaner production benefits to the organization in the short and long term, there are many obstacles or problems facing the application and the good application of this approach in managing the business of institutions, as these obstacles differ between the internal and external.

○ Internal obstacles:

- Lack of information and experience.
- Low environmental awareness.
- Business priorities compete, in particular, pressure for short-term profits.
- Financial obstacles.
- The absence of communication channels in the institution.

○ External obstacles:

- Difficulty in accessing cleaner production technology.
- Difficulty in obtaining external financing.

In addition to the internal and external obstacles, other obstacles can be identified, which are the legislative obstacles that can be: (Kafi & Talem, 2017, p. 09)

- The weakness of strategies and policies of economic companies and institutions in focusing on cleaner production in terms of industrial, technical, commercial and environmental development.
- The Immaturity of general environmental policy frameworks in the Arab world, especially in light of the failure to implement laws or within the support data and the material license used.

3. Introduction to recycling and institutional recycling

Recycling has become widely circulated term today, due to its distinguished importance in several aspects.

Before defining the own concept of recycling, we point out and clarify that it is not a coincidence or a specific moment, but rather the product of different ideas across many times, as well as according to the requirements of several situations that led to thinking of solutions to certain obstacles that was recycling its main solution.

The initial development of recycling dates back to more than 4000 years, when the Chinese used silkworm waste to raise fish in the lakes in order to retrieve their protein contents in form of a fish protein. (Muhammad & Masoudi, 2018, p. 10)

Recycling waste appeared as a result of the human needs that are due to the lack of different resources or materials that meet the human needs to face scarcity and effort in providing resources that produce what is needed for daily life or the requirements of different activities through different time periods, especially in periods of wars or crises. Before entering to more details about recycling we have first to explain the meaning of pollution that that is: (Al-Samarrai, 2005, p. 17) what produced from waste or extra energy due to human activities that may be gases, solid, liquid or radiation, and when it is moved to water, air or the earth concentrated or transformed chemically by reaction with the elements of environment and it is contaminated when it excrete other materials.

Pollution is a quantitative or qualitative change in the environment components that environmental systems cannot absorb without disturbing their balance.

The quantitative change may be by increasing the proportion of some natural components of environment, such as increasing the carbon dioxide from its usual rate as a result of large fires, whereas the qualitative change results from adding foreign industrial compounds to natural environmental systems, where they accumulate in water, air, food or soil as agricultural pesticides. (Rashid & Sabarini, 2013, p. 120)

Some reasons that lead to the spread of waste: (Muhammad & Masoudi, 2018, p. 06)

- *. A steady increase in population;
- *. Rapid industrial progress accompanied by increasing industrial waste's amount and the inability to dispose of it at the same speed;
- *. Adopting improper methods of waste disposal such as: burning, throwing waste in seas and rivers, throwing waste in landfills and the absence of responsibility sensing to find radical solutions;
- *. The lack of effective action to reduce this problem, because all movements are based on individual activities and efforts at small levels and specific regions.
- *. The absence of strict and deterrent laws that prevent throwing waste and punishing violators by paying fines or imprisonment;
- *. Inability to absorb the huge amount of waste in one landfill;
- *. Slow disposal of waste due to insufficient activities;
- *. Neglecting citizens and not realizing the extent of the environmental problem resulting from waste.

In the year of 2010 in the State of Lebanon, the rate of waste generation varied from 0.8 kg / person in rural areas to 1.1 kg / person in cities, i.e. about one kilogram per day, which is equivalent to 1.6 million tons of solid household waste issued annually, and this rate rose to 1.05 kg / Per capita per day in 2013, 6 million tons of waste, almost all waste is collected by municipalities or private transport companies, most of which is composed of organic materials (55-55% in cities and rural areas), while the rest is divided between recyclable materials such as Paper and cardboard (17-17%), plastic (13-13%), metals (5- 6%), glass (3-4%), and waste Others such as cloth, wood and other (10-12%) characterized by the high proportion of waste moisture, which exceeds 60%. (Nature Conservation Center, 2016, p. 08).

In 2012, the global production of plastics was 2881 million tons an increase of 2.8% compared to 2011. The European Union has a share of 20.4% from the global production in 2012, and Britain has 2.5 million tons from the global production. The British operations are more than four (4) million tons of plastic annually, which is about 40% of plastics single-use applications (Waste & Resources Action Programme, 2014) , from that we notice that about half of the British production of plastic is used once, after the initial use is thrown as waste, these percentages require the presence of industrial efforts within recycling in order to reuse this waste as raw materials for the same products or other products, which reduces the cost of inputs and reduces the level of pollution in the same time.

According to the Environment Agency of the U S A, the production of one ton of paper from 100% of waste paper saves 4100 kw/h of energy, and will save 28 m³ of water in addition to

decrease the air pollution resulting by 24 kg of air pollutants, despite of that, 20.9 tons of paper are recycled annually, compared to 52.4 tons of paper, which are disposed of without recycling, and the recycled paper is used for printing of daily newspapers. (Mjahdi & Brahimi, 2012, p. 18) .

The Algerian government imposed taxes that direct its financial returns to care of environment, aiming to change the behavior of industrialists and people towards environment. The value of this new tax determined by the law ranges between 500 and 1,000 dinars per meter, between 1,000 and 10,000 dinars for a professional shop, between 5000 and 20000 dinars for the owners of plots allocated for camping, and between 10 thousand and 100 thousand dinars for the shop that has an industrial, commercial or craft activity that produces quantities of waste. It imposed also tax of 1 dinar per liter on the consumption of petroleum in its ordinary and excellent types, which contains lead material, tax on private or dangerous industrial waste amounted to 10500 dinars per ton, and tax on medical waste at 24 thousand dinars per ton. 10% of incomes from these taxes go to councils, 15% to the public treasury, and 7% to the National Fund of Environment and Decontamination, (Ben Attallah, 2012, p. 11) . despite of these fees and taxes, new methods must be found or imposed to reduce pollution from the production process or impose waste recycling so that pollution reduction is a preventive solution inherent in the production process and not a remedy.

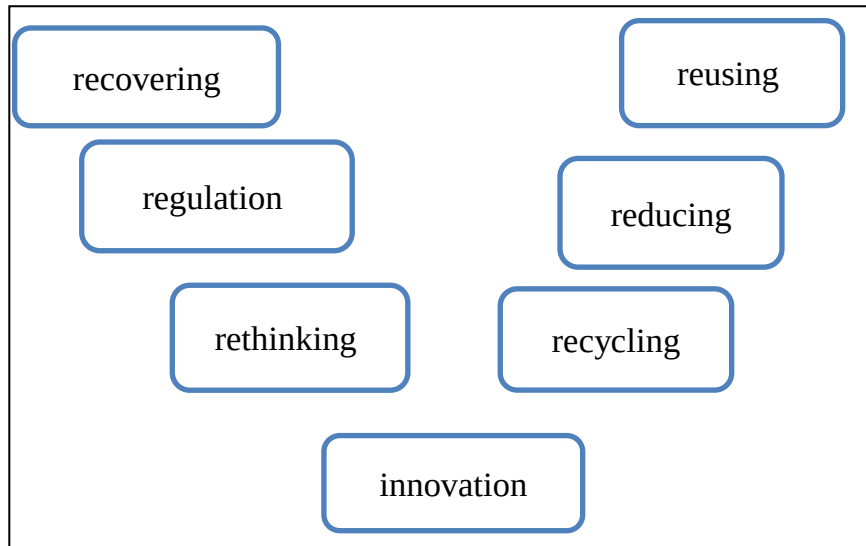
How is the recycling process?

For plastics, the streams of household, commercial and industrial waste are collected, then the recovered polymer is separated according to type and color, granulated, washed and cut back into pellets ready for reuse, some polymers also have some additives to improve their characteristics. The polymers for the food class are kept separately to ensure their reused in food packaging. Recycled polymers can be used alone or mixed with unused polymers. It is recommended first to experiment the low levels of recycled plastic and then increase the steps and retest them to make sure that there is no negative impact. (Waste & Resources Action Programme, 2014)

From the numbers mentioned above in this article the threat of waste is obvious from the various productions of carton, plastic and others that threaten both of environment and people nowadays or in the future, we refer to international trends towards recycling to realize its importance in reducing pollution.

Recycling represents one of seven elements of the golden rule for waste management that aims to preserve the environment and to the optimal use of resources. This rule is represented in the following figure:

Figure n°2: the golden rule for waste management 7Rs



source : (Musa & Rahmane, (2008))

The environment that contain this seven (7) elements shown in the figure, it will be healthy and continuously generating resources, with reduced or no pollution addition to that getting a non-waste products in the sense of cleaner production.

Recycling has become an international concern also an international competition to reach high rates for waste recycling, reduce the cost of importing raw materials not available locally and reduce pollution and prevent from it, the following table shows ratios of waste recycled in each country with arranged according to these ratios.

Table 1. the first ten (10) countries in recycling

Rank	Country	Waste recycling rate
01	Austria	63%
02	Germany	62%
03	Belgium	58%
04	Holland	51 %
05	Switzerland	51 %
06	USA	49 %
07	Sweden	49 %
08	Luxembourg	46 %
09	Norway	42 %
10	Denmark	40 %

Source: (<http://www.sasapost.com/recycling-around-the-world>, 2016).

From the table, we note that the first place globally in waste recycling belongs to Austria which has exceeded 60% in recycled waste that leads to a reduction in the uses of new materials from recycled materials for institutions and families, which leads to reduce the cost of this material for institutions and this is reflected in the lower prices of final products that are directed the consumer.

We point out that during 2018, Germany has reached 100% of recycling its waste and it is seeking to import waste from other countries to serve its economies and preserve its natural resources for future generations.

4. Social and environmental responsibility

Before referring to environmental responsibility, we must refer to the concept of environment and social responsibility, the fact that environmental responsibility falls within the social responsibility.

The environment is everything integrated includes globe and it is the planet of life and what affects it from other components of the universe. The contents of this framework are always interacting, influencing and affected. (Rashid & Sabarini, 2013, p. 26)

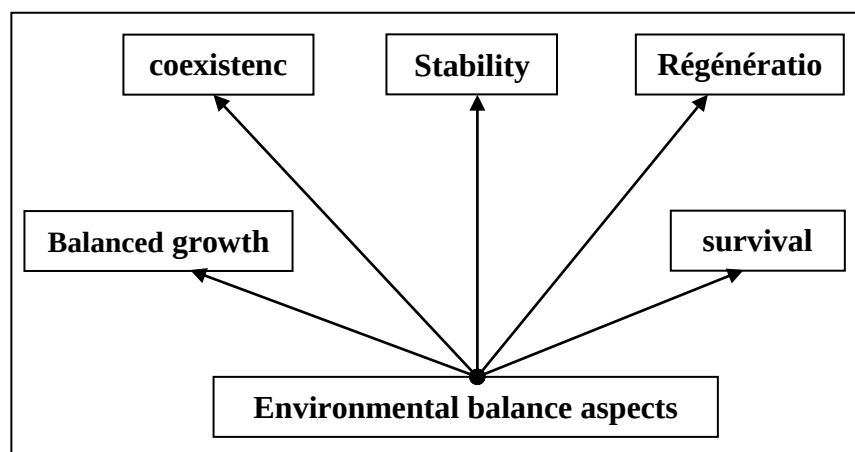
The replacement of human being in the earth does not mean that he has the freedom of disposing how he wants, also the right of property is not an absolute right in which he does not has the right to do what he wants. Therefore, the person's use of what he harnesses of the environment resources and its components must be within the limits of energy and ability of the ecosystems that it is a part of, and it is not correct for the absolute behavior to act without taking any considerations or results that may lead to disturbance of the ecosystems, disturbing their balance and exposing them to life. (Boufalja, 2016, p. 15)

The environment in which the various creatures live requires protection in order to survive. This protection is enough to preserve the environmental balance that leads to the lack of imbalances between the components of the ecosystem.

The protection of the environment includes a balance between what the environment provides on the one hand, what earth's inhabitants demand on the other hand, and on the third hand the volume of production or the institutions requirements for resources.

The environment balance appears by a number of aspects in which this balance is achieved. Whenever the absence of one of the aspects resulting unfinished imbalance environmental. We summarize these aspects in the following figure:

Fig. 03 : aspects of environmental balance



Source: (Ouserir & Hammou, 2010, p. 32)

Survival is the continuation of environment existing in the format it was created for, provided that the use of resources is within the environmental ability to produce an alternative to non-renewable resources. As for regenerating, it means the use of resources within the limits of their ability to regenerate, while stability represents the unchanging environment features. (Ouserir & Hammou, 2010)

The presence and affiliation of enterprise to the society that produces for it which represents its target market in one or some of its categories, requires it to adopt what is positive towards this society, that falls under the framework of social responsibility that has become a necessity and not an optional approach in adopting it.

In the present time, the enterprise approach to adopt social responsibility as a whole and environmental responsibility in a specific manner based on recycling or cleaner production and other activities and other strategies in an effort to reduce its waste, which means the optimal use

of its resources on one hand and on the other hand to create a positive image about it and its products for the members of society whether they are existing or prospective customers and consumers.

We define social responsibility as: (Falag, 2013) the set of decisions and actions taken by the organization to reach the desired goals and prevailing values in society, which ultimately is a part of the direct economic benefits of managing the organization and seeking to achieve them as part of its strategy.

From our point of view, we define social responsibility that it represents the group of positive activities and behaviors that the organization carries out towards the society and all the parties that it deals with, in order to create a good relationship with them, which will benefit them in achieving its goals.

The environmental commitment of the individual or institution is an important part of their responsibility towards society, as the environment is a place and source of life for the various members of society. Therefore, it is not possible to separate the environmental and social responsibility because everything related to the environment is among the rights of all members of society.

5. The economic importance of cleaner production and recycling

Recycling and cleaner production both have a positive impact but enterprise also can achieve economic returns through them, in addition to consumer satisfaction and the role of its products in achieving the benefits of society, where we can limit the environmental importance of recycling in the following table:

Table 2. environmental benefit from recycling.

Benefit	glass	paper	Steel	Aluminum
Energy reduction	04-32%	23-74%	47-74%	90-98%
air pollution reduction	20	74	85	95%
water pollution reduction	-	35	76	97%
Mining waste reduction	80	-	97	-
Reduced water use	55	58	40	-

Source: (Rachida, 2008, p. 55)

Using recycling of different waste to preserve the environment is evident through the interest in the recycling process at the household, institutions as well as governments that impose strict laws for behaviors that preserve the environmental integrity and reduce pollution, the established institutions and factories specialized in collecting and recycling all kinds of waste or specialized in recycling one type, such as cardboard, plastic or glass, as a saving of resources by minimizing

the cost of the raw materials used and preserving the environment on the other hand, as they represent new activities for institutions that can act in this industry.

Within the economic importance of recycling and cleaner production we refer to what is known as green or environmentally friendly products (Al-Bakri & Al-Nouri, 2007) , so the green product is the product that uses environmentally friendly materials that can be self-degradable or recycled, with the need to follow it during the stages of its life cycle to ensure that it remains within the environmental commitment, this includes: avoiding harmful hormones and preservatives, using the minimum energy needed and raw materials, avoiding toxic chemicals and using recyclable packaging.

The environmental performance of the institution can enhance its competitiveness and increase its capabilities to distinguish in the market, for example: studies have confirmed that the company for phones Nokia has increased market share by 57% due to the publication of the German Consumer Magazine for research that was one of its results the acquisition of NOKIA company in the first place in environmental performance, as the company can obtain material benefits that increase the reliability of its products to current and prospective customers, where some international organizations give material rewards to organizations that have environmental performance. (Zidane, 2010, p. 75).

6. Recycling and cleaner production towards economic, social and environmental development

Economic development is no longer contradicted with achieving environmental protection. With the increasing of international responsibility towards environmental protection, it was necessary to achieve sustainable development that achieves economic goals within the framework of a clean environment. Sustainable development is "development that meets the needs of the present generation without harming the ability of future generations to meet their needs, It imposes the preservation of natural assets for future growth and development" (Ben Attallah, 2012, p. 7)

The International Union of Nature Conservation was established in 1948 and issued the first statement about Nature conservation in 1950, which referred to the link between the environment and economic development in order to present the possibility of achieving economic growth while preserving nature in the framework of sustainable development. (Ben Attallah, 2012, p. 03).

The term of "sustainable development" was first proposed in 1974 after the Stockholm Conference, and was then used as mentioned in the drafting of the United Nations Environment and Development Committee report chaired by the Prime Minister of Norway, which issued its report entitled "Our Common Future, or what is known as the Protentland Report", where sustainable development known as providing the needs of the current generations without harming the right of future generations to obtain what they need, while the Rio de Janeiro Summit linked environmental protection and sustainable development, environmental protection and social and economic development are principle imperatives of Sustainable development. (Boufalja, 2016, p. 21).

In order to establish the concept of sustainable development, it is necessary to provide a number of elements that constitute the pillars of sustainable development, the most important of which are: (Khamra, 2007, p. 32)

- Meeting the humanitarian needs of the population, that is the primary function of sustainable development, by redirecting resources to ensure that the basic needs of society are met and to improve the standard of living.
- Sound environmental management where the present needs cannot be met without harming the ability of future generations to meet their needs, unless there is capable management to ensure the continued use of natural resources without waste within the framework of environmental constraints, sound environmental management is that which contributes to achieving sustainable development through effective use for all possible tools, environmental legislation and laws, environmental impact assessment, adherence to the principle of environmental accounting, environmental information base and others.
- Human development: equals sustainable development because there is no sustainable development without sustainable human development, human development includes three aspects that are: formation of human capabilities, community investment of its acquired capabilities, knowledge and education.
- Environmental Economics: The economy represents the nervous system of interactions between the environment and development, therefore, sustainable development depends on the extent of success in the balance between the economic system and the ecosystem.

Achieving development and sustainable development in the social or economic aspect is not limited to legislation and the state responsibility in its authorities and administrations. Each society and economic institutions have a role in that, because of the presence of links in various areas between members of society, the state and the economic institution.

Small and medium enterprises have an important role in achieving the development goals of the new millennium, these institutions assist in industrial development and help to achieve equitable and balanced economic growth. They also have a greater ability to spread more than multinational companies and large national companies. (Arab Planning Institute, 2010, p. 08)

The developmental role of small and medium enterprises became clear due to their large number, as well as their diversity in terms of production and operations, including public institutions, as well as the private ones. Where we find private sector institutions that have a pivotal role in the development process, which has been proven by the successes of advanced economies in this field, private sector institutions have realized that they are not isolated from society, and have been warned of the need to expand their activities to include more than productive activities, such as concerns society and environment, and to the need to take into account the three sides defined by the World Business Council for sustainable development, namely economic growth, social progress and environmental protection. (Irene, 2011)

The current environmental degradation represents a serious challenge to human development, human peace and security, and that the benefits of the initiative to take early action measures exceed the costs incurred, and represent opportunities for private sector investment, consumer options, and local communities, as well as to enhance cooperation at the national and

international levels to pursue the sustainable development. (Directors, 2008, p. 03) .

Cleaner production is a practical way to apply sustainable development, so it is an advanced preventive step for waste management or treatment at the end of a pipe, as it addresses the problem from the origin with its causes, not its symptoms. (Musa & Rahmane, (2008), p. 85)

We find that whenever the institution is unable to adopt cleaner production that achieves natural and healthy growth for the environment, recycling can be used, which represents a therapeutic solution for waste management and reducing all kinds of pollution.

Both of recycling and cleaner production are important as much as the economic importance that achieve reducing costs and optimal exploitation for institution , as well as they can contribute in the society development from several aspects as human, economic, and environment, in the short or long term targeting towards sustainable development.

7. CONCLUSION

Everyone must care about the environment that he belongs and not from that is imposed by the non-polluting production laws as factories and material transfer areas, so through this research paper we conclude the necessity of complementarity and consistency between the efforts of both institutions and individuals as consumers or individuals within all society, In addition to the commitment of each of them to the laws that should be completed in the environment preservation. We find from the institutions who choose to conserve the environment voluntarily as a citizen, where they seek to implement the strategy of cleaner production, while the resources and the nature of products of other institutions do not enable it for that, where recycling is targeted in order to contribute to environmental protection and reduce pollution by using its waste or even buying or collecting waste to produce other products whose cost of raw materials is almost non-existent, which returns with good financial returns on the institution and thus continue to exist in the market, even with recycled products that the institution, the citizen, and even other institutions and distributors benefit from, while providing employment positions that contribute to economic and social development events that lead to environmental conservation and development in the short and long term. From what we have seen in this research paper we conclude the following results:

- Environmental protection is a commitment of everyone belongs as an individual, institution or government legislation.
- Environmental protection is not a therapeutic solution, but must be a preventive solutions, which represented in a clean production that does not leave any environmental damage or otherwise.
- Recycling enables the organization to convert lost costs and resources into usable resources.
- Adopting the strategy of cleaner production and recycling, a sound integrated environment can be achieved without any disturbance to the ecosystem.
- Both of cleaner production and recycling are an obligation and commitment to enhance environmental development through the adoption of environmental responsibility.
- Recycling and cleaner production is an integrated environmental responsibility and development through the obligation and commitment of each individual, group, institution and legislation to environmental responsibility, because the environment is a right and a duty for everyone who belongs to it or uses its elements and resources.

8. Bibliography List :

- (s.d.). Consulté le oktober 01, 2018, sur www.ee.aa.gov.eg/portals.: www.eeaa.gov.eg/portals.
- <http://www.sasapost.com/recycling-around-the-world.> (2016, 09 14). Consulté le 11 25, 2016.
- Al-Bakri, T., & Al-Nouri, A. N. (2007). *green marketing*. Jordan.: Dar Al Yazouri Scientific for Publishing and Distribution.
- Al-Samarrai, M. S. (2005). *Preserving the environment in the Islamic Arab eras*. Jordan: Jarir House.
- Arab Planning Institute. (2010, Issue 90.). *Corporate social responsibility. A periodical concerned with development issues in the Arab countries*. Kuwait.
- Ben Attallah, A. (2012). *Environmental rehabilitation of the Algerian economic institution between need and necessity. The first international forum on the environmental rehabilitation of the institution in the economies of North African countries*. Algeria: University of Tebessa, November 06.
- Boufalja, A. R. (2016). *Civil liability for environmental damage*. Doctoral dissertation. Algeria: University of Tlemcen.
- Daden, A. G., & Hafsi, R. (2019, december 02). *The enterprise between achieving competitiveness and determinants of social responsibility*. <https://manifest.univ-ouargla.dz/archives.>, Kasdi Merbah University of Ouargla - Algeria
- Directors, U. N. (2008). *Findings of the fourth report on the Global Environment Outlook*. Monaco: United Nations.
- Falag, M. (2013). *The social responsibility of Arab oil companies, the two companies "Algerian Sonatrach, Saudi Aramco" as a model*. *Researcher Journal*. Kasdi Merbah University of Ouargla - Algeria. Volume 12. Issue 12., pp. 29-38.
- Industrial Development Administration. (2017). *cleaner production applications*. Morocco : Arab Industrial Development and Mining Organization.
- Irene, R. (2011, mai 29). Récupéré sur <http://www.veecos.net>.
- Kafi, F., & Talem, A. (2017). *Cleaner production as a strategy to support environmental management systems to achieve sustainable development*. *Milaf Journal of Research and Studies*. University of Mila - Algeria. Volume 03 Issue 01, 509-533.
- Khamra, T. (2007). *Environmental and social responsibility is an entranceto the contribution of the economic institution to achieving sustainable development*. Magister Thesis. Algeria: University of Ouargla.
- Mazreik, A. .. (2011). *Cleaner production between comprehensive production maintenance and modern manufacturing systems*. *Academic Journal of Social and Human Studies*, Chlef University - Algeria. Volume 3, Issue (02)., 11-21.
- Mjahdi, F., & Brahimi, S. (2012). *The cleaner production program as a mechanism to increase the effectiveness of the practice of environmental management and support the environmental performance of the entreprise*. *Journal of the performance of Algerian institutions*. Kasdi Merbah University of Ouargla - Algeria. Volume 01. Issue 01., pp. 77-94.
- Muhammad, M., & Masoudi, A. k. (2018). *Contributions of waste recycling to achieving sustainable development*. *International Forum on Renewable Energy Strategies and their Role in Achieving Sustainable Development*. Algeria: Blida University, 23/24 April.
- Musa, A. N., & Rahmane, A. ((2008)). *Environmental management and its implementation mechanism in the industrial establishment*. *Journal of economic and administrative research*. University of Biskra - Algeria. Volume 02. Issue 02, 65-94.

- Nature Conservation Center. (2016). Solid household waste management. Lebanon: The American University of Beirut.
- Ouserir, M., & Hammou, M. (2010). Environmental energy as a mechanism for achieving sustainable development in Algeria. *Journal of Contemporary Economics*. Khemis Miliana University - Algeria. Issue 07, pp. 29-42.
- Rachida, E.-A. (2008). Urban solid waste management. Master Thesis. Algeria: University of Ouargla.
- Rashid, A.-H., & Sabarini, M. S. (2013). The environment and its problems. Kuwait : The National Council for Culture, Arts and Letters.
- Waste & Resources Action Programme. (2014). Using recycled polymers in new products: a business opportunity. U S A: www.wrap.org.uk/plastics.
- Zidane, S. (2010). Total Quality Management - Philosophy and Business Entrances. Jordan .: Curriculum House for Publishing and Distribution.