

Environmental Spending: The Portal to a Sustainable, Green Economic Approach.

Les Dépenses environnementales: Le portail d'une approche économique durable et verte

BOUZIDA SAOUSSEN^{1*}, CHAOUI CHAFIA²

¹University of Badji Mokhtar Annaba, Algeria, irisa16@hotmail.fr

²University of Badji Mokhtar Annaba, Algeria, laree2383@yahoo.fr

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Abstract:

Even though environmental problems are not new, we have only recently begun to understand their dimensions after observing the impact of environmental degradation on weakening economic development and decreasing its potential, and the main solution is “Environmental spending”. In order to that, this paper will present the different aspects of Green Economics on Environmental Spending as well as the successful OECD strategy as a guideline for future Algerian investments in the green field. Our main findings were that Algeria has paid some attention to the environment; however its efforts were not enough and should be supported through some private environmental investments. To conduct this paper, we used the descriptive & analytical approach, data has been collected from multiple sources which helped us to analyze the ideas, and connect them logically and scientifically.

Keywords: Environmental Spending, Green Economy, Sustainable Development, OECD, Algerian environmental strategies.

(JEL) Classification : K32, O13, O44, Q01, Q50, Q51, Q56, Q58, Q59.

Résumé

Les problèmes environnementaux ne sont pas nouveaux, mais nous n'avons que récemment commencé à comprendre leurs dimensions après avoir observé l'impact de la dégradation de l'environnement sur l'affaiblissement du développement économique, et les chercheurs du domaine ont trouvé qu'une des solutions est “la dépenses environnementale”. Ce document donc tente de mettre en lumière les différents aspects de l'économie verte sur les dépenses environnementales, et de montrer les stratégies de l'OCDE en tant que ligne directrice pour les futurs investissements algériens dans les champs verts. A la fin de l'étude, on a trouvé que l'Algérie a accordé une certaine attention à l'environnement ; cependant, ses efforts ne sont pas suffisants et devraient être soutenus par certains investissements privés.

Mots Clés : Dépense environnementale, Économie verte, Développement durable, OCDE, Stratégies environnementales algériennes.

Classification (JEL) : K32, O13, O44, Q01, Q50, Q51, Q56, Q58, Q59.

* Corresponding author: **BOUZIDASAOUSSEN**, Emailirisa16@hotmail.fr

1. INTRODUCTION

For economists the issue of environmental degradation is a challenge, because it sheds light on the market failure to express the natural wealth of society and to lay the foundation for economic growth. An example of this failure is that natural forests are only included in national economic accounts when they are removed and traded in the market, while the environmental benefits of the forest are ignored. On the other hand, we find that natural resources such as petroleum and extracted minerals are included in the national accounts as national income, although they are depleted resources, which means that we're consuming our capital and do not keep our children and grandchildren the same opportunities that we have, if not better, as the concepts of sustainable development requires.

In order to that, Algerian government and economic institutions should give more attention to the environmental protection, to push and sustain the Algerian economic development and that will be through environmental spending, however environmental spending could be very expensive and costs the government additional money that she cannot spare.

1.1. Research Problematic: Based on the above, we can formulate the problematic of this research in the following question:

How to Successfully Rationalize Environmental Spending for a Better Outcome?

a) Study Hypotheses:

We may put some preliminary hypotheses as follows:

- Governments must adopt the green approach in all its activities ;
- Green Economics is the guide line for a successful environmental spending ;
- Businesses should go green to minimize their bad environmental outcomes ;
- Public environmental spending alone is not enough to cover the losses.

And for answering the problematic we chose to build this paper on **Four Main Axes** as follows:

- Green Economics' Concepts ;
- Environmental Spending Concepts ;
- The Experience of OECD Countries in Environmental Spending ;
- Algerian Achievements in Environmental Spending.

1.2. Research Aims & Methodology:

The importance of this research lies in the importance of the Environment in the Economic sector. We seek to show the most important features of the Green Economics approach to encourage Algerian economic institutions and government to adopt it and use its strategies in its environmental spending operations. So the purpose of the present paper was to clarify the concept, indicating its importance as well as the necessary requirements for its habilitation and development in Algeria as an alternative solution to improve the national economy in the light of the current crisis.

To conduct this paper we used the descriptive analytical approach, the main emphasis has been made on Green economics and Environmental spending. Data has been collected from multiple sources: journals, research papers, websites ...etc. which helped us to analyze the ideas, and connect them logically and scientifically.

2. Green Economics' Concepts :

The abuse of natural resources and the deterioration of the environment is one of the biggest problems facing developing countries. The common solution to such risks is usually environmental spending, but before explaining the fundamentals of the latter we must first know what the environment is, and identify the green economy through which environmental spending policies are determined.

2.1 Environmental Concepts :

2.1.1 The Environment :

The environment can be defined as a set of natural, industrial and social resources available at a given time; it is composed of three basic components (*Azeb, 2016*):

- a) Ecology:** includes water, air and soil with all its components, such as minerals, natural plants, animals and their total interactions.
- b) Man made products:** Any man-made technology, factories, ships... etc.
- c) Social environment:** the cultural, political and organizational system of human societies.

2.1.2 Environmental degradation:

The environment is often at risk, and that is known as “Environmental Degradation” which is divided into two types (*Azeb, 2016*):

- The first is the depletion of non-renewable natural resources, particularly for mineral resources and fossil fuels;
- The second is the pollution of renewable natural resources, such as water, air and land.

Environmental degradation includes toxic emissions, waste and disruption of ecosystems. So to avoid them, and preserve the environment with its components while continuing our production a set of standards should be followed.

2.1.3 Environmental Standards :

Environmental standards are the conditions that must be met in the products, either in their inputs, their constituents, their production methods or their packaging, as well as to how to deal with their pollutant outputs. These standards adopt a legislative form that relies either on *jus cogens* based on censorship and sanction, or on market-based procedures (*Azeb, 2016*). And all of those standards will be explained in details in the following title of green economics principles.

2.2 Green Economics Orientation :

2.2.1 The Evolution of the Green Economics’ concept:

The classical and neoclassical economics thought schools failed to address environmental issues, such as resource allocation, environmental impacts and pollution, because they thought of these issues as purely social, and did not consider natural resources as productive assets, therefore are not within the framework of optimal use. Also environmental losses and social costs, which are called external costs, were not taken into account, ex: when producing an industrial product, it is not counted as cost items, like how many tons of fish have been destroyed in the Mediterranean Sea; or how many people have been affected and sick due to gases and dust released? How much will it cost to treat them and what production losses will result from the interruption due to illness?

The neglect of these environmental dimensions by institutions and governments became evident during the 1970s as the level of environmental damage and pollution around the world increased and non-renewable resources became unstable after the first oil crisis (*Vargas, 2016*).

As a response to the integration of those environmental problems into the economy, environmental principles and policies emerged, such as: "Polluter pays" principle (PPP), the principle of state sovereignty and the international environment, Preventive and precautionary principle and sustainable development principle (*Vargas, 2016*).

Green economics has now an important role in addressing contemporary environmental issues at both the international and national levels. It became necessary to understand the causes and consequences of misuse of environmental resources, environmental degradation, pollution and climate change, and Green economics is the main part of the process of developing environmental policies around the world.

2.2.2 The Concept of Green Economics :

The environment is seen in the economics as a complex capitalist asset, therefore economists want to prevent any deterioration that can occur in the value of this asset so that it can continue to provide its services to man with the same efficiency for as long as possible. Thus, green economics is the theoretical and empirical studies of the economic effects of environmental policies of the whole world, in other words green economics means how economic and political activity affects the environment in which we live, studying how to protect the environment with minimal material costs, and how the environmental protection standards affect economic growth, i.e. the economic impacts of environmental policies (*Azeb, 2016*). So, it is a reciprocal relationship between economy and the environment, economic activity leads to environmental degradation, and environmental degradation negatively affects long-term economic growth.

2.2.3. Green Economics Objectives :

The green economics seeks to achieve a number of objectives like:

a) Exploring Market Failure: Exploring market failure to assess natural environmental components, external influences and property rights, and consider the environment as a capital asset; ex: the usual problems that the environmental economy may face are how the commitment to protect the environment and environmental standards affects the cost of production and thus the economic growth and regional competitiveness in the case of its application.

b) Calculating the Opportunity Cost: In this context, the concept of opportunity cost is a measure of scarcity, as well as the alternative marginal opportunity cost, which is the direct marginal cost plus the external marginal cost plus the marginal cost of the use. In order to calculate this, much information is needed on the various relationships between natural resources and economic activities, such as expectations of future exploitation patterns and the development of future demand and supply of natural resources.

2.3. Sustainable Development in the framework of Green Economics:

The combination between the environmental dimension and the economic framework has transformed the concept of economic development from the mere exploitation of scarce economic resources to meet the multiple and renewable human needs to the concept of "sustainable development", which is defined as the development that meets the needs of the present without compromising the right of future generations to meet their requirements. To stop the exploitation of economic resources such as water, oil and forests (*Azeb, 2016*).

There is a rotation between economic growth and environmental degradation. While environmental degradation has negative effects on growth and economic activity, this activity itself has caused this deterioration. On the other hand, more stringent controls to mitigate environmental degradation will restrain growth and allocate resources, but the lax control of environmental pollution will indirectly constrain future growth as a result of environmental damage to economic activities such as agriculture, tourism, health and infrastructure sectors (*Azeb, 2016*).

In the shed of this dilemma, we see that the solution lies in activating green marketing activities in the field of environmental protection and environmental spending to push compensatory investments to preserve natural capital and ensure its renewal.

3. Environmental Spending Concepts:

3.1. Environmental Spending :

Environmental spending or environmental expenditure is an expenditure directed towards environmental protection; it is usually the measures taken by governments against the encroachment of economic activities on the environment and their introduction into national accounting as income-generating activities. It should be noted that there is a difference between spending to reduce environmental damage and spending to prevent damage, and the latter is what constitutes defence spending. This subject still needs further study and research so that the components can be separated from one another and concepts are appropriately identified (*Djameledine, 2012*).

Spending can be considered as an environmental cost if one of the two conditions is met: If the expenditure results in an increase in the productive life of an asset or increase its production capacity, or if the cost leads to the reduction or prevention of an environmental triangulation that has not yet occurred or is likely to occur in the future.

3.2. The Impediments of an Effective Environmental Management :

Environmental management is very important but this process has its institutional linkages that impose restrictions, such as: Advanced information system ; Appropriate media quality and an institutional system that allows for planning , follow-up and the provision of trained managerial staff with sufficient experience in environmental affairs and management (*Djameledine, 2012*). However, this is often not available; instead we find many environmental management constraints such as:

- a)** Centralized management and centralized decision-making, which prevents problem solving;
- b)** Multiple operational institutions and the lack of appropriate training programs;
- c)** The absence of stable development strategies hampers the work of environmental management.
- d)** Some neglected aspects of the economic life in the mainstream of economic analysis, the most important of which are the following (*Azeb, 2016*) :
 - Natural resources are not considered productive assets and they are still excluded from the concept of "optimal use" of resources.

- The term "less expensive" refers only to less expensive for production factors directly involved in the production process, for example, the cost of increasing carbon dioxide that causes global warming is not calculated.
- Environmental losses and social costs, which are called external costs, are not taken into consideration.
- In order to overcome these impediments there is a need for a greater flexibility and decentralization of environmental action and clear relationships between institutions that plan for the environment and those who implement it; also, there is a need for standardization of training and rehabilitation programs, data collection and analysis.

3.3. The Impacts of the Environmental Spending:

As much as we need environmental spending in our current situation, it must be known that it has a double impact, which should not be neglected, those impacts are presented in the following table:

Table 01: « Environmental Spending Impacts »

<i>The Impact of Environmental Spending on :</i>	<i>Positive Impact</i>	<i>Negative Impact</i>
<i>Employment</i>	Maintain most of the existing workplaces and encourage the creation of new jobs due to increased industrial investments in environmental protection and other environmental expenditures.	The Closure of an entire factories or parts of them for not being able to follow restrictions and environmental conditions.
<i>Marginal Factories</i>	These factories are unable to afford the extra cost, so through the environmental orientation of their countries they can optimize the exploitation of resources, improve production techniques, and expand through integration with other industries or branches.	They usually cannot afford the extra costs caused by the environmental protection requirements, so they become unprofitable and have to be closed

<i>International Competition</i>	The development of environmental protection technology, the production and marketing of environmental investment goods can lead to enhancing the competitiveness of some countries that have strict environmental restrictions.	US studies showed that labour productivity in the US decreased at the macro level by almost 0.1% per year during the years 1969-1987 due to environmental protection measures, while other studies have shown that productivity can increase at the micro level.
<i>Investments</i>	The adoption of green marketing in business allows the encouragement of new types of green-oriented investments.	Suspending or impeding pre-planned investments for reasons related to environmental protection policy.
<i>The Stability of the Price</i>	As a result of stringent environmental regulations in the environmental technology, environmental protection costs and equipment may decrease, leading to long-term price declines and stability.	Environmental protection measures from regulations and restrictions, as well as taxes and duties, create additional costs that lead to price augmentation for products at the short term.
<i>The Payments Balance</i>	In the framework of International competition, green products are very required in the environmentally hardened countries, which will increase their importation.	Short-term environmental spending leads to higher prices, reducing state export rates
<i>Economic Development</i>	The sustainability of resources as a result of environmental orientation will drive Long-term growth	spending on non-productive investment in the environmental protection field negatively affects short-term growth

Source: Authors treatment based on the info from:

- (Laama&Chenini, 2011): **The Requirements of Economic Development and Environmental Spending - Attraction or Dissonance** - , the 2nd International Forum on the outstanding performance of organizations and governments, Ourgla, Algeria.

4. The Experience of OECD Countries in Environmental Spending:

4.1. The Role of (OECD) in the international community :

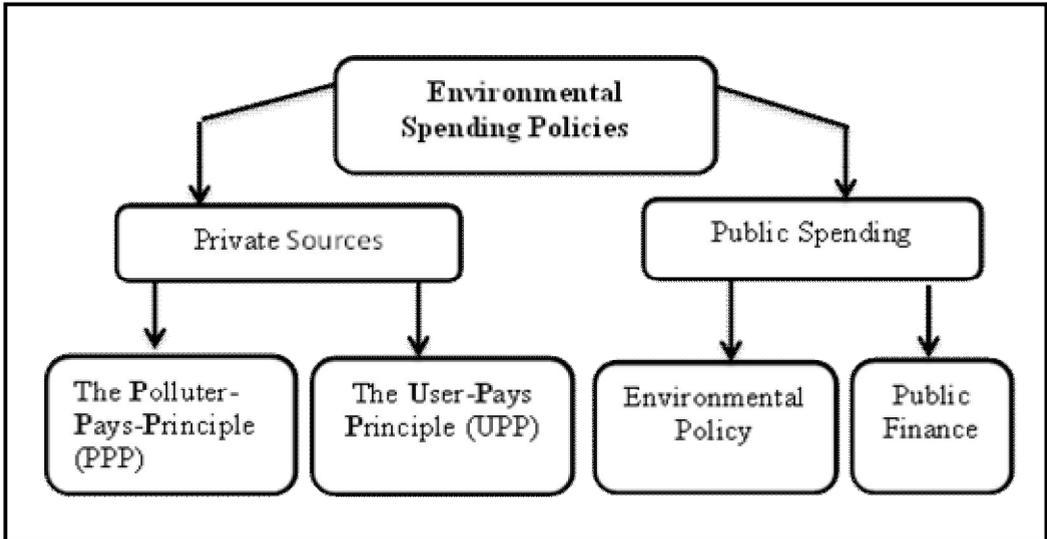
The Organisation for Economic Co-operation and Development (OECD) seeks to promote policies that will improve the economic and social well-being of people around the world, its main role is working with governments to understand what drives economic , social and environmental change ; providing a forum in which those governments can work together to share experiences and seek solutions to common problems and setting international standards on a wide range of things , from agriculture and tax to the safety of chemicals . Today, OECD countries are focused on helping governments around the world to foster and support new sources of growth through innovation, environmentally friendly ‘green growth’ strategies and the development of emerging economies , and ensure that people of all ages can develop the skills to work productively and satisfyingly in the jobs of tomorrow (*OECD, 2018*) .

The OECD has also developed a framework to measure the level of environmental expenditure in member countries, ensuring the collection of reliable and internationally comparable data. This framework covers the flow of capital and recurrent expenditure, subsidies and fees that are directly aimed at environmental protection, whether incurred by the public sector, the business sector, specialised producers of environmental services or private households.

4.2. The Rationalization of Environmental Expenditure according to the OECD Method :

Ensuring that public expenditure programmes are well-managed is an essential element of efficient environmental policies. For that, we present this policy brief of the OECD countries’ public expenditure programmes to look at how effectively governments use public funds to achieve environmental objectives, and what economies in transition can learn from the OECD experience in crafting and managing their own public expenditure programmes.

Fig. 1: « The OECD's Environmental Spending Policies »



Source: Authors treatment.

4.2.1. Private Sources :

Environmental policy in OECD countries tries to make sure that those responsible for pollution and those using natural resources are the ones whom bear the full cost of their actions, so its policy is generally guided by two key principles (OECD, 2007):

a) The Polluter-Pays-Principle (PPP) :As its name suggests, the (PPP)implies that polluters should pay to cover the full costs of any subsequent clean-up without subsidies. With that said it must be known that the PPP specifies that public environmental expenditures may be justified if they are well targeted, limited in size and duration and do not introduce significant distortions to competition or trade⁴ or when polluters cannot be identified.

But for the full application and success of (PPP)in developing economies a number of problems must be resolved:

- Weak or ineffective enforcement of environmental policy ;
- The severe financial constraints on enterprises and households ;
- The uncertainties in fiscal systems ;

- The under developed banking systems and capital markets ;
- Inadequate informations on the cost of environmental damage.

b) The User-Pays Principle (UPP): The (UPP) states that revenue generated by users must cover all the costs related to the use of a natural resource such as water or the treatment of resultant pollution or waste.

Beyond public financing schemes, user charges are the only sustainable long-term financing option for environmental investments. Ex : User charges in France and Germany have been raised to cost-recovery levels and now generate enough revenue to cover at least the operating and maintenance costs of water utilities, but also as far as possible investment in new water supply and sanitation infrastructure. Thus, in the OECD countries, public environmental expenditure programmes are part of a gradual transition from public subsidy schemes to financing through user charges.

4.2.2. Public Spending :

Both (PPP) and (UPP) aim at avoiding the use of public funds to deal with pollution. However, in some circumstances public spending may be necessary to limit pollution and environmental damage. Environmental public spending needs to be assessed from two angles (*OECD, 2007*):

a) Environmental Policy: From this perspective, the key challenge is to ensure that public expenditure achieves the intended result at least cost, and that it forms part of a coherent strategy for achieving environmental objectives.

b) Public Finance: From this perspective, when choosing which environmental programmes to finance, governments should ensure that the expected social benefits from any spending programme exceed the expected social costs. If the benefits are difficult to measure, governments can instead test how cost-effectively an environmental programme achieves its objectives.

4.2.3. The Good Practices:

The OECD has also developed Good Practices for Public Environmental Expenditure Management (PEEM) to assess the performance of institutions managing public environmental expenditure programmes, by studying how far the national and regional environmental funds of a number of developing economies comply with these Good Practices. The results have been used to prepare reform

plans to improve the performance of the institutions involved. The Good Practices cover three key areas:

a) Environmental Effectiveness: It concerns the performance of public expenditure programmes as instruments of environmental policy.

b) Budgetary Good Practice: covers how to align the programme with the principles of sound public finance.

c) Management efficiency: considers how efficiently a financing institution uses financial and human resources.

4.3. The Management of Environmental Spending :

Environmental funds are a popular way of channelling public expenditure for the environment in both OECD and non-OECD countries, but the way they operate differs widely.

OECD countries tend to focus on one environmental medium at a time such as water, air or waste treatment. This makes for more efficient management since it is easier to define environmental objectives and to monitor results; it also makes it easier to target human and financial resources and to adjust the programmes if necessary. Contrary to the non-OECD countries where funds are allocated for the environment in general which makes it hard to manage them since there are no clear targets and objectives.

In Austria, for example, the government operates three funds supporting environmental investment: a Water Management Fund, an Environment Fund and a Contaminated Sites Remediation Fund. Between them they provide almost 300 million euros in investment support each year, leveraging investments of over 1.1 billion euros (*OECD, 2007*).

5. Algerian Achievements in Environmental expenditures:

The environmental situation in Algeria is no different from the rest of the world. In addition to its global environmental problems such as global warming, air and water pollution, and desertification it also suffers from regional problems related to climate , demographic growth, reconstruction policies , consumption of materials, poverty, lack of security...etc. But the most significant environmental problems are at the national level, problems like lands depletion and degradation;

limited freshwater; excessive population growth and Biodiversity Erosion (Environment Forum, 2008).

Therefore, the Algerian government is paying some attention to the environment through the enactment of environmental laws, the adaptation of some green economic measures and the application of environmental projects to improve the environmental situation.

5.1. Algerian Environmental Legislations :

A. The law on the management, control and removal of wastes: It was adopted in December 2001, and states that it is imperative to prevent waste, and to value it by reuse or recycling .(*Law No. 10-19, 15 December 2001.*)

B. The law of Environmental protection within the framework of sustainable development: Approved in July 2003, it establishes the control of various environmental components. (*Law No. 103-10, 20 July 2003*)

C. Law on air quality and air protection: States that it's imperative for the public authorities to control the quality of air at the level of large gatherings (more than 50 thousand inhabitants).

5.2. Algerian Economic Measures :

The Algerian strategy in environmental protection is based mainly on a set of economic instruments as follows (*Belkarmi, 2008*) :

A. Environmental fiscal collection:It's an arbitrary monetary deduction imposed by the state on the product as a punishment for polluting the environment, thus it will be an incentive not to pollute or to search for environmentally clean technology. This revenue from the tax administration goes to the National Fund for Environment and Decontamination by 75% Municipality 10% and the balance sheet 15%.

B. Government Expenditure: Financial resources primarily allocated to pollution control measures and the protection of natural resources, and within the framework of economic recovery for the period (2001-2004), the share of investments in the environmental sectors amounted to about 28.9 billion Algerian dinars distributed over: water networks, protection of the steppe areas and basins, waste treatment, Pollution control, regionalization, biodiversity, conservation of archaeological sites.

C. The Policy of Reducing Subsidies: The adoption of this policy is to stimulate the preservation of natural resources by approaching the real price of the resource, so that the policy is price-adjusted. If this policy is combined with the sectorial policy it can rationalize energy consumption and reduce emissions of air pollution, and control the consumption of water, fertilizers and pesticides in Agriculture.

D. Algerian Environmental Projects : The Algerian government set up several projects to protect it, beginning with the creation of the National Council for the Environment in 1974, up to the National Environmental Strategy (SNE) 2001-2011 and the National Plan of Environmental Action and Sustainable Development (PNAE-DD). (*PNAE-DD, 2002*)

5.3. The Ten-Years Algerian Environmental Strategy (2001-2011) :

The ten years environmental strategies included the following fields (*Belkarmi, 2008*):

A. In the Desertification field :Algeria has allocated significant amounts to reduce desertification, allocating 800 million dollars annually for the implementation of this project through afforestation campaigns and by holding conferences and work agreements on the phenomenon. About 3 million hectares have been recovered within the 7 million hectares that have been threatened since 1996.

B. In the Air Pollution field :A number of measures have been taken to reduce the risks of air pollution, including financing projects to supply air quality control stations, selecting pollutant-free fuels such as lead-free gasoline, switching to clean energy sources such as electricity or solar power , In addition to that shutting down the polluting factories ex : the closed unit of ZahanaMaaskara (August 2008), after finding out that the amino acid, causes cancer .

C. In the Water, Sea and Coastal Pollution field : Since 1992, the country has been working on preparing a plan for coastal development, purchasing equipment to control oil pollution and establishing specialized tires to regulate port traffic. It also worked to establish a partnership with European countries to improve the management of water resources. The program initiated by the Ministry of Water Resources, With 170 million dinars, and according to the latest information 50% of it was completed.

D. In Urban and Industrial Waste field :Algeria enacted a law in 2001 to reduce the size of stocks and the risk of toxic products and impose fines on those polluting the environment. About 60 environmental and economic performance contracts were concluded in 2005 between the Ministry of Environment and projects in the field of food and industry. With regard to urban waste, measures were taken to try to reduce the damage with a loan of 26 million dollars granted by the Islamic Bank of the State of Algeria.

E. In the Biodiversity field : In 2008, the Ministry of Environment and Territorialisation signed an agreement aimed at all national authorities of a national, regional and local nature with a view to promoting awareness and inclusion of a culture of biodiversity within projects and society as a whole. For example, A plan has been drawn up for the management of the Karbas plain in Skikda for the rational use of the resources of the surrounding area. The purpose of this project is to preserve the existing biodiversity at risk.

F. In the Environmental Education field :Awareness of environmental culture stems from successful environmental policy, where the ecosystem has been linked to the educational system. In this regard, Algeria has included lessons on the environment in the first educational phase and has printed a textbook for the environmental education scale of the second stage. It has also established radio and television programs on the environment that are shared by the press.

6. CONCLUSION:

Uncontrolled economic growth can lead to environmental pollution, which will have an impact on long- term growth conditions. Therefore, green economics call for a trend towards environmental spending, which is increasing steadily at the global level, for having a clear impact on all economic variables - production, investment, consumption and labour market, in order to that it should be used on a national level as well.

6.1. Main Results:

Algeria has paid some attention to the environment by enacting a set of laws in this framework, in addition to implementing economic measures to protect the environment and adopting the national strategy for the environment from 2001 to 2011, thus reducing the dangerous industrial pollution and reducing economic loss.

However this is not enough, these Algerian efforts should be supported through environmental investments, which can affect the distribution of the economic surplus and income together and lead to economic well-being, but this distribution may have a negative aspect, depending on how we apply it.

6.2. Recommendations:

We can suggest a number of recommendations that should be adhered to when adopting this approach to avoid its negative aspect:

- Having an advanced information system and appropriate media quality ;
- Having an institutional system that allows for planning and follow-up and the provision of trained managerial staff experienced in environmental affairs.
- Decentralizing management and decision-making,;
- Appropriate training programs ;
- Having stable development strategies ;
- Using the (PPP) and the (UPP) policies in the Environmental spending to lighten the burden on the public funds ;
- Focusing on one environmental medium at a time such as water, air or waste treatment, instead of allocating funds for the environment in general.

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