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ENVIRONMENTAL POLLUTION AND ITS IMPACT ON ECONOMIC GROWTH IN IRAQ (AN APPLIED STUDY ON THE REALITY OF THE IRAQI ECONOMY)

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ABSTRACT

The research aims to study the environmental impacts resulting from the practice of various economic activities, which have serious repercussions on the environment, which represents the comprehensive container for the elements of natural wealth, and on society and life in general.

The problem of environmental pollution is represented by the transformation of many environmental resources, represented by rivers, water bodies, air, and soil, from being free commodities to being economic commodities whose supply is characterized by relative commodities. This problem is expected to worsen if the volume of economic activity continues to increase. It is clear that economic progress is accompanied by an increase in the costs that must be borne to keep the environment clean, and economists distinguish between private costs and social costs.

It is possible, in principle, to control or limit pollution resulting from economic activity through multiple means and policies, the most important of which is the policy of state intervention, directly or indirectly, through the use of its economic tools such as taxes and subsidies.

The problem of environmental pollution is a global problem that no country can get rid of, and Iraq is one of the countries that has suffered greatly from this problem over the past three decades as a result of the scourges of wars, neglect, poverty, destruction, etc., all of which have had a negative impact on the Iraqi environment, in addition to the fact that Agricultural and industrial economic activities in particular and the methods used in them have also been reflected in the exacerbation of this problem.

KEYWORDS: Environmental Pollution, Economic Growth.

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INTRODUCTION

The environmental problem has become one of the most important problems facing humanity at the present time, which has emerged significantly due to the industrial and technological development and the expansion of the Industrial Revolution, and the resulting search for ways to contribute to the use of clean technology, especially in capitalist countries that have greatly harmed the environment and the prevalence of pollution problems of all kinds, from air and water pollution, global warming and other manifestations of pollution, as pollution began to pose a threat to human health and life and as a result of those risks, countries began to conclude international agreements to reduce the level of environmental pollution using all available means.

This problem is one of the problems facing all countries of the world, but attention to it came late, despite the economists ' sense of the seriousness of this problem, and the first of these concerns came from The Economist Bijou in general 1932 when he addressed the problem of environmental pollution, but studies and research related to it took its real course only in the sixties of the last century when this problem became a competition this problem concerns all countries of the world, including In Iraq, which has suffered from a clear deterioration and deterioration of the environment, especially in the last three decades of the last century as a result of wars and the destruction of infrastructure and natural resources, as well as the economic effects resulting from economic activities, especially the agricultural, industrial and service sectors.

Chapter One
Research methodology

Problem of the Study

The problem of pollution is one of the most important problems facing the countries of the world, which has begun to take on serious economic and social dimensions, especially after the economic, industrial and technological development, which was accompanied by many serious environmental problems at the local and international levels, in addition to the lack and difficulty of obtaining environmental indicators in Iraq.

The importance of the Study

The importance of the research is based on highlighting the basic aspects related to the problem of environmental pollution and identifying its causes, risks and ways to combat it at the local and global levels.

Objective of the Study

The research aims to identify the economic effects of environmental pollution . In general, and on its economic effects in Iraq, especially in the agricultural and industrial sectors, while indicating ways to improve the environmental reality.

Hypothesis of the Study

The research is based on the hypothesis that :

First: environmental pollution has economic

consequences and its disposal and preservation
A clean environment is offset by additional economic costs.
Secondly, the deterioration and deterioration of the Iraqi environment will cause damage and economic costs at the level of economic activities in general and agricultural and industrial activities in particular.
Search structure:
For the purpose of achieving the objectives of the research, it was divided into three chapters, the first included the research methodology, the second included the concept of the environment and environmental pollution, and the third included the practical or analytical aspect of environmental pollution and its impact on Iraqi economic growth.

Chapter Two
Theoretical Framework
The First Search

The Concept of Ecology and Types of Environmental Pollution
First: the concept of Environment:
The reason why the definition of this science differs is due to differences in the intellectual directions of researchers. Some of them consider the environment from a social, economic or cultural aspect, in addition to its basic aspects represented by the physical and biological aspects, which represent the natural basis of the human environment, considering that its economic, cultural and social aspects determine the human needs of ways, means and methods of exploiting natural resources and their uses, as defined by the United Nations conference on the Human Environment held in Stockholm in that it is (the balance of material and social resources available at some time and place to satisfy human needs and aspirations) and the environment in its general sense is the medium or spatial sphere in which a person lives, including phenomena Therefore, the environment means all the natural and life elements that exist on the surface of the Earth, and the environment is defined as the framework or space in which man and other living beings live and from which he derives his livelihood), (dwider, 2004 :110)
As for the definition of the environment in the Iraqi law No. 3 of the year 1997 (as the physical, chemical and biological environment that surrounds living organisms)
Thus, we can say that the environment is the totality of the things that surround us and affect the existence of living organisms on the surface of the Earth, and the environment for humans is the framework in which he lives, which contains the main environmental elements water, air and soil). (In bold, 2010 287)
As for Ecology, it is defined as the science that deals with the study of living organisms and their relationship to the surrounding environment, it is concerned with the complex relationship between life and life, and researchers have divided the environment into two main parts: :
1-the natural environment: it is the manifestations that are introduced to humans in their existence or use, and its manifestations include desert, seas, climate, terrain, water, environmental and animal life, and the natural environment is considered to have a direct or indirect impact on the life of living organisms, including humans, animals and plants.
2-The constructed environment: the constructed environment consists of the infrastructure constructed by man and the social systems and institutions established by him.the constructed environment includes land uses, agriculture, residential areas, exploration of natural resources, as well as industrial and commercial areas, roads and others.
The environment, both natural and constructed, is an integrated whole that is not rigid, but it is constantly interacting, influenced and affects the human being, being one of the components of the environment.
This requires man, who is the only sane person among the forms of life, to deal with the environment and the mutual relations among them in such a way that man can find and develop a better location for his life and the lives of his generations after him. (In bold, 2010 267)
In fact, the connotations of the environment expand to include the natural and constructed

environment, the social environment and the aesthetic environment, and include the earth with its geological composition, movements, surface, climate, soil, plant and animal distribution, and others.

Ecological characteristics of the Iraqi environment:

Environmental transformations and changes in Iraq are causing environmental imbalances and this imbalance is reflected in a variety of ways, including droughts and extreme climatic fluctuations, and these changes in the climate lead to damage to the biological balance and lifestyle, and under these atmospheres and climates, groups of biological components disappeared, as well as these changes led to various economic, social and health disorders throughout the ages. (Hanoush, 2004)

Environmental pressures in Iraq and their exacerbations accumulated over decades constitute a heavy burden on the ecosystem, but the pace of environmental degradation has accelerated during the second half of the last century and even now, so this problem of degradation is a central issue of life, because stability and development are closely linked with the promotion of Environmental Protection and hygiene trends, so we had to here to address the study of identifying sources of pollution and discuss it with touching on the structure of the axes of the Iraqi environment.

Third: the concept of environmental pollution

Environmentalists and climate scientists disagreed to reach an accurate and specific definition of the scientific concept of environmental pollution, whatever the definition, the scientific concept of environmental pollution is primarily related to the ecosystem, as the efficiency of this system is significantly reduced and completely injured when there is a change in the harmonic movement between the different elements, the quantitative or qualitative change that affects the:-

Environmental pollution: it is the existing situation in the environment resulting from the changes introduced in it that cause inconvenience, illness or death to humans directly or through disruption of environmental systems.the causes of pollution are known as pollutants and pollutants are known as substances or microbes that harm humans.

Types of environmental pollution:

Environmental pollution can be divided into two main types, namely natural pollution and human pollution

(Peterson, 2011 :156)

1-natural pollution: it is represented by non-industrial processes in nature, i.e. outside the will of man, i.e. imposed by nature, such as earthquakes, volcanoes, storms, hurricanes, floods, forest fires, dust and natural radioactivity.

2-human pollution: it is caused by industrial, agricultural and urban activities represented by the discharge of toxic industrial waste to ecosystems, or the release of toxic gases into the air or elements with destructive radioactivity to the environment, as well as many other forms of pollutants.

Due to the importance of pollution and its nature, it has been divided into three distinct degrees::

Acceptable pollution: it is a degree of pollution that is not affected by the balance of the ecosystem and is not accompanied by major environmental hazards or problems

B-hazardous pollution: this stage is an advanced stage of pollution, as the quantity and quality of pollutants exceed the normal limit, and the negative impact on the natural and human environmental elements begins with it.

C. Destructive pollution: this pollution represents the stage at which the ecosystem collapses due to a radical imbalance, for example, the Chernobyl accident that occurred at the nuclear reactors of Ukraine in 1986 and the pollution caused by the Japanese reactors (Fuku Shima) in 2011 as the ecosystem has completely collapsed and needs many years to rebalance .And at a high economic cost.

Environmental pollution also takes on multiple problems: (Peterson, 2011 :159)

1-air pollution: which is the most widespread

form of environmental pollution due to its ease of transmission from one region to another, and this type of pollution affects humans, animals and plants directly, for example, increasing the concentration of some gases such as carbon dioxide, which leads to global warming, which increases the temperature of the globe.

2-water pollution: it means causing a disturbance in the quality of water so that it becomes unusable, as well as marine pollution caused by the movement of transport through the ocean, as most of the existing industries nowadays overlook the coasts of the seas and oceans.

3-soil pollution: it is the pollution that affects the lithosphere and the upper crust of the planet as a result of severe pressure by man to deplete resources, for example, the misuse of agricultural land leads to a decrease in its productivity, and the misuse of technology leads to the emergence of pollution as a result of the misuse of fertilizers and pesticides, and the increase in industrial and mining activity has led to an increase in pollutants, solid and radioactive waste, where some governments bury these wastes underground.

4-noise pollution: noise is defined as the interference of a group of loud and sharp unwanted sounds, causing inconvenience to humans and provoking them, resulting in the effects of nervous tension, digestive system and heart disease. The most important environmental pollutants are summarized as:

A-pollutants resulting from the combustion of fuel, coal and their derivatives.

B-pollutants resulting from industrial waste.

C-pollutants resulting from the burning and reuse of waste and industrial waste.

D-chemical and toxic substances.

C-gaseous substances, toxic and suffocating vapors.

The second topic

The concept of economic growth and its importance

First: the concept of economic growth:

The economic literature has shown that there is a general agreement among economists in general about the difficulty of defining the meaning of economic growth in this literature in terms of its time range, or in terms of its subject to change with each technical or technological progress or with any change in the prevailing socio-economic and political environment . This difficulty comes from the fact that economic growth is subject to extremely complex factors, patterns and variables . Although the earliest definitions are according to Peterson Wallace (W. Peterson argues that the essence of economic growth should be based on the ability of the economy to produce goods and services, provided that this ability is accompanied by a constant increase in output and should be accompanied by quantitative and qualitative changes in various structures of the economy and society, while some others believe that economic growth is the increasing rise in real income per capita as a result of constantly improving and renewing the means of production . Others argue that the gross real national product (GNP) rate per capita is an indicator of economic growth from the point of view of material well-being, despite the disadvantages that are reflected in the accuracy of the estimates and how the existing output is distributed, in addition, it does not necessarily mean improving the standard of living of the individual . (Al-qutaifi, publishing house, Baghdad, 2015 :134)

Second: the importance of economic growth:

The American economist (S. Kuznets) economic growth is a process that ensures a continuous increase in the production of modern material wealth, it may mean that what a generation or more of the population feels in a particular country, it is living a state of continuous improvement in income and living standards, constantly acquiring a tangible amount of modern technological means and civilized conditions known at high levels of growth globally.

Perhaps growth in this general sense is not much different from the contents of the definitions of economists, which differ among themselves in

such a way that it is difficult to say that the contemporary economic literature has settled on a unified definition and term of economic growth that is fully agreed among all .

Growth(Growth), development (Development), expansion (Expansion) and progress (Progress) are words that some authors term synonyms without distinction, while others distinguish between their meanings, each defines them according to his own diligence .it is not easy to find among modern economists a complete agreement on the unified meanings of these terms.

In light of the above, it can be said that the distinction between the terms economic growth and economic expansion is almost settled on considering the former a long-term phenomenon and the latter a short-term phenomenon .

In general, most of the economic literature has tended to define growth as the increase that occurs in the productive capacity of the economy over time, and in this sense, economic growth tends in essence to achieve a steady long-term increase in the productive capacity of the economy .if the production capacity increases after a period of depression, the increase is cyclical, not steady, and this is not economic growth. This concept also excludes transient economic growth, due to its lack of continuity and stability, and because it occurs for external emergency reasons that disappear with their demise, and the occurrence of this branch of growth within the framework of rigid social and cultural structures, its indirect effects are minimal in moving the wheels of self-growth in various productive activities in the national economy . (Mansfield, & Nariman , 1988 :208)

Third: the elements of economic growth:

In general, there are elements that must be considered when embarking on any growth or development process, whether short-term or long-term, and these elements will accompany planners and implementers of the development process constantly, namely:

(Callan and Thomas ' 2000 . p.10)

1-employment /employment

2-Capital / Capital

3-Natural Resources / Natural resources

4-administration and Management / Administration and Management

5-Technology / Technology

1-employment: competence and experience are necessary conditions for employment to be able to deal with modern methods and means of production, in other words, the huge numbers of untrained, incompetent, unskilled workers, that is, those who are unable to deal with a modern machine or a complex computer, may constitute an obstacle to economic development, and this is evident in many countries that suffer from unemployment and employ skilled foreign labor in all labor sectors, especially industry and services, not to mention qualified people such as university professors, bank managers and doctors.

2-capital: what is meant here are the means of production that are suitable in quantity and quality, including the requirements to benefit from them, that the supply of capital depends on the level of savings and this savings constitutes the difference between income and spending, the poor town suffers from a lack of capital because people spend most of their income on consumption.

3-Natural Resources: this element is an assistant, there are countries that do not possess natural resources, but they are an economic giant like Japan, while most Arab countries contain huge amounts of natural resources, but these countries are still developing.

4-management and organization: the organization must be in line with what is consistent with the customs, traditions, norms and beliefs of society.

5-technology: it is the knowledge of ways to transform raw materials into goods and services, and the role of technology appears here more than in the invention of new types of goods or the development of existing ones.in other words, the elements of production (land, labor and capital) need many types of technology that produce many goods and services.

Fourth: measuring economic growth:

Having defined economic growth as a steady increase in productive capacity, a very important question arises here regarding how to measure this steady increase in productive capacity, or in other words, what is the preferred metric that can be relied on to measure economic growth in a country There is a reliable measure that links economic growth with the meaning of total material production or real national product achieved by the economy in a given year . Economic growth according to this measure refers to the rate of increase in the real gross national product achieved by the economy in a certain period of time of a year .an increase in the real national product means that the economy is growing, a stable national product means that the national economy is static, while a decreasing national product means that the national economy is declining.

It is worth noting here that this measure is based on the real output of final goods and services valued at their real value (Real value) and not at their monetary value (Nominal) in order to exclude the impact of price fluctuations in the temporary recovery waves that occur through economic cycles, the production of a larger quantity of goods and services means that the national economy is growing, but paying a large amount of money for a fixed or decreasing amount of output does not mean at all that the national economy is growing, but it means that the national economy is stagnant or declining . (Kuznets, 2016 : 214)

The explanation of economic growth is not limited to just an increase in real national income, but it must involve raising the level of real per capita income (per-Capita Income), so economic growth can be measured by the amount of a continuous real increase in average per capita income, and the justification for this is that if the mere increase in national product is taken as a criterion for growth, the national product may increase without increasing average per capita income in case the rate of increase in population exceeds the rate of increase in national product, which leads to a decrease in per capita income, or when the rate of increase in population is equal to the rate of increase in national product . Thus, the per capita income rate remains constant.

In addition, an increase in national income is a necessary attribute to increase the average real income per capita, and if the increase in per capita income is taken as a measure of growth , it is not acceptable to describe a country as not growing, if an increase in its national income is achieved and accompanied by an equal increase in the population, or equality between two countries the increase in the population prevented an increase in the per capita national income However, if the rate of increase in national income is taken as a growth criterion, then it is possible to compare the achieved growth with the change in the population to show the extent of improvement in per capita income and, consequently, the amount of economic well-being that accompanied the growth process. (Swilm, 2014 : 128).

The relationship between environmental pollution and economic growth

The environmental problem in economic thought:

The environmental problem is represented by the transformation of many environmental resources represented by water, air and soil from free commodities to economic commodities characterized by relative supply.the problem of environmental pollution takes several dimensions, the most important of which are air pollution, pollution of water sources and the use of land as a waste repository. there are other manifestations of pollution such as food pollution, distortion of scenery and other manifestations.

Economists believe that the problem of environmental pollution will worsen if the increase in the volume of economic activity continues, there was a belief among economists that the degree of overcoming the scarcity problem is measured by the size of the real income per capita, that is, what he receives from capital and consumer goods, and this

constitutes a measure of progress, which consists in working to raise the average per capita real income, but the question about the validity of this imposed by the following facts (al-Sayed, 2014 :101)

A-it is impossible to imagine the continuation of economic activity indefinitely due to the accompanying increase in the rates of consumption of natural resources that are permeable.

B-the practice of both production and consumption activities causes the appearance of residues that need to be disposed of in the natural air and land, which represent the storages in which these wastes are dumped , and the more residues that are desired to be disposed of, this leads to an increase in pollution rates in the environment surrounding humans

From the foregoing, it is clear that the benefits generated by the increase in productive activity are not a net benefit, but are offset by economic and social costs, represented by the volume of depleted natural resources and the rates of corruption of the natural environment from the remnants of productive activities.

2. The economic cost of environmental pollution:

The concept of cost is one of the accounting and economic concepts, and cost in general means the economic sacrifice borne by the economic unit for a service or benefit necessary to achieve its goals, as for the environmental cost, it includes the cost of actions taken to manage the environmental impacts that result from the activity of the productive unit in a responsible manner, as well as other costs that are called for by the objectives or environmental requirements of the productive unit.

The environmental cost is represented by environmental expenses, including the cost of the steps taken to avoid, reduce and repair the environmental destruction caused by the productive unit's activity, or the conservation of renewable or non-renewable resources, these costs include the expenses of landfill and disposal of waste, water conservation, air quality and improvement, noise reduction, the search for more environmentally friendly products and raw materials and production processes, and the costs are generally divided into the following sections: (Arab Monetary Fund / Tahrir, 1995 :87)

To direct and indirect environmental costs, direct environmental costs, examples of which are the following:

Calculation of the costs of medical treatments for diseases caused by production units.

Percentage of the gross national product	Cost in dollars	Territory
3-5%	100 billion	European Union
3%	500 billion	United State
-	250 billion	Asia
-	125 billion	Developing countries
3-5.5%	-	Japan
3%	17 billion	Arab countries
-	40 million	Taiwan

(Arab Monetary Fund / Tahrir, 1995 :87)

From the table (١) it is clear to us that the estimate of the financial burden of environmental pollution control varies from one region to another and that these amounts are just estimates, there is no accurate calculation of the financial cost of environmental pollution except for some developed countries, and the table (٢) shows the real amounts spent to combat pollution.

Schedule (٢)

The real costs of combating environmental pollution in the United States selected years (in

dollars)

Amounts spent	Year
41 billion dollars	1976
50 billion dollars	1987
$119 billion	1995
200 billion dollars	2005

(Arab Monetary Fund / Tahrir, 1995 :87)

From Table (2) it is clear that the real costs of pollution control in the United States for the period from 1976-2005 increased almost fivefold, which indicates that the costs of Environmental Pollution Control increased over time as a result of increased economic activity.

Linking economic and environmental growth:

While economic growth is affected by the issue of scarcity and the possibility of running out of available natural resources, at the same time accelerated growth affects the abundance and quality of available environmental resources and therefore may lead to environmental degradation. Since economic growth is represented by productive economic activities that require a set of production elements from human labor, Natural Resources, Capital and technology, it is a function of the elements of production aimed at finding new goods of benefit, however, this process leads to the emergence of residues that cause pollution and upset the environmental balance, and it turns out that the benefits generated by increased productive activity, measured by the real volume of income, do not represent 9 net benefit, as it is offset by social costs represented by the equation of spoiling the environment. Therefore, the practice of productive and consumer activity leads to the emergence of waste and waste products, of which the resources of the environment (air, water, soil) are stored, as they increase at an increasing rate with increasing rates of economic activity, and therefore the relationship between pollution levels and the volume of productive activity is a direct relationship.In economics, the economic problem is represented by technological techniques and preferences and must be linked to the environment, which describes the natural process characterized by the accumulation of pollution, the environment is linked to the economy through the following elements: - environmental pollution is caused by the production and consumption processes of economic units.

- The radiation generated by economic units affects the flow and accumulation of pollution in the natural environment, for example (sulfur oxide radiation, noise, the accumulation of carbon dioxide in the atmosphere or the accumulation of phosphorus in the water...Etc.). Environmental pollution has a detrimental effect on the functioning of individuals. -

- Environmental pollution can have adverse effects on productivity while improving the quality of the environment may have the effect of enhancing productivity. (Zarwat, Ibn Uthman.(2014)).

Chapter Three

(The practical or analytical aspect of Environmental pollution and its impact on Iraqi economic growth)

Economic activity and its impact on environmental pollution:

In it, we will discuss economic activities and the extent of their impact on environmental pollution in Iraq, and our study here will be limited to agricultural activities, industrial activities and agencies:

1-agricultural activities and their effects on

environmental pollution

The adoption of unconscious methods used in agriculture results in harmful environmental effects in developing countries, including Iraq, by threatening the agricultural resource base, soils, forests and food production through the occurrence of erosion, desertification, salinity, food pollution and soil pollution factors, which lead to a decline in agricultural production instead of progress.

Agricultural activity has negative effects on the deterioration of soil quality, pollution of river waters and their effects on public health, but they are considered less serious than the effects from other sectors, and these effects can be identified through the following (Al-Saadi, 2018 :67)

A. desertification:

The desertification process is the result of human activity and severe pressure on land, or under the impact of climate change shocks in dry systems.the factors of poverty, poor stability, tree cover removal, overgrazing and scarcity of water resources are factors affecting the quality of land and its productive efficiency, all of which lead to desertification.

The problem of desertification is one of the most important environmental problems facing Iraq, as the areas threatened by desertification in Iraq are estimated at 401 thousand hectares, which constitutes 92% of the total area of Iraq . The most important economic and health consequences of the phenomenon of desertification can be summarized as follows

The phenomenon of desertification has led to the loss of more than two thirds of Iraq's field crops.. Reducing the per capita share of agricultural land and thus reducing productivity, which would lead to a decrease in the per capita harvest of food.

B-pesticides and agricultural fertilizers:

Many types of pesticides are used to combat agricultural pests , and the quantities used have increased in recent years clearly, as the quantities used in Iraq for the year 2022 amounted to more than 500 thousand metric tons of solid and liquid pesticides, although pesticides and agricultural fertilizers have a major role in increasing agricultural production, but at the same time they pose a harm to the environment and health, as follows:

* The wrong use of it by farmers, as many of them believe that the increased use of pesticides and fertilizers will lead to an increase in production, due to the lack of awareness guidance in this area, as the wrong use of it will have negative effects on the volume of production as well as the environment.

* Exposure to pesticides has negative effects on human health, as studies and research have shown that thousands of people in developing countries die every year as a result of pesticide poisoning, as well as the exposure of other preparations to diseases as a result of direct exposure to pesticides.

Pesticides affect human health through direct skin contact or inhalation, or eating food contaminated with pesticides, and as an example of this, we refer to what happened in Iraq at the beginning of the seventies of the last century and eating wheat treated with one of the mercury disinfectants, which led to the death of 450 a person and the infection of more than 6000 A person with symptoms of poisoning.

In general, it can be said that the wrong practices of pesticides and fertilizers used in agriculture have had a negative role in polluting the environment through excessive use of them.

C-trolls:

It is considered one of the main sources of water pollution of rivers or water bodies, as in Iraq these trocars are connected directly to the Tigris, Euphrates and Shatt al-Arab rivers, and the measurements of the analysis of salts and dissolved substances for the Shatt al-Arab for the year 2022 indicate that the results of these measurements exceed the permissible limits and their concentration reaches ppm of salts and residues of fertilizers and pesticides, and in turn affect the water quality in rivers, especially by raising the level of salinity and other pollutants, which seriously causes the elimination of biodiversity in water and water

bodies, and it has been estimated the amount of water released by trollers to the Tigris and Euphrates rivers during the Eighties of the century The past billion cubic meters per year

2-industrial activities and their impact on environmental pollution in Iraq:

Field and laboratory studies and research related to industrial activities and their impact on the environment have shown the existence of high pollution cases represented by:

A-water pollution: industrial activities cause water pollution, as available statistics indicate that 27% of industrial water discharge goes directly to river waters, and the rest goes to agricultural lands, sewer networks and the creek shows the liquid theses of some laboratories of the Ministry of Industry (2008)

Schedule (٣)

Liquid subtractions of the coefficient of the Ministry of industry for 2022

Exposed pollutants	Discharge from the production process m3/s	Quantity of industrial water dispensed m3/s	sector
Mercury	4986	94247	Chemical
	2510	16014	Engineering
	425	8565	Nutritional
	5125	14465	Histological
	13046	133291	the total

Ministry of Planning and Development Cooperation, Environmental Statistics Report for the year (2022, p. 87)

The areas for discharging liquid waste from the Ministry of Industry's laboratories were distributed among drains, rivers, sewage networks, and lands adjacent to those laboratories.

As a model for industrial activities in Iraq, the environmental impacts resulting from the cement industry will be addressed, as it is one of the most environmentally polluting industrial sectors, as shown in Table (4).

Table (4)

Quantities of corporate waste released by the Ministry of Industry and Minerals for the year 2022

Quantity Of Waste, Kg/Month	Company Name	Sector
1192500	General Phosphate Company	Chemical
14040	Light Industries Company	Engineering
26000	General Oils Company	Nutritional
38111	General Company For Textile Industries, Babylon	Histological
1350000	Iraqi General Cement Company	Construction

Ministry of Planning and Development Cooperation, Environmental Statistics Report for the year (2022, pp. 185-186)

There are (15) cement factories in Iraq spread across (7) governorates, and the majority of

these factories extend around the cities near rivers. The cement industry is classified as one of the environmentally polluting industries as a result of the cement dust it produces, and these products cause widespread pollution surrounding agricultural lands. Heavy parts of it accumulate on plants and cause serious damage, as it leads to the reduction of agricultural land. It was found through a study conducted by the Ministry of Environment that 90% of these laboratories do not contain dust precipitators.

As one of the studies conducted by the Samawa Cement Factory to study the environmental impact of the factory showed that the expected amount of dust is approximately 8% of the amount of cement produced in the factory. This means that the production of (1000) tons of cement per day will result in 80 tons of volatile dust when There is no dust precipitator, but if a dust precipitator is operating, this amount can decrease to less than 5 tons of dust per day, as the statistics available for the Muthanna Cement Factory showed that the environmental impact

The stages accompanying the production processes are as follows: (Hanoush, 2010: 77)

_ Change in the nature of the area: The industrial area, including quarries and production facilities, was originally agricultural or pastoral areas.

_Flying dust: There are types of dust that accompany production processes, where percentages of sulphates and alkalis are concentrated that affect public health, and disposal operations are carried out by transporting them to special landfill areas that cannot be exploited in the future for agricultural, pastoral, or residential purposes. Exhausts, which are gases resulting from the combustion of fuel. Used in the various stages of production, these gases are formed from carbon monoxide, carbon dioxide, and others, which negatively affect the environmental environment.

_Waste and sewage, which come in several forms, including those related to industry, such as waste from fuel and oil stores, industrial water, and wastewater, which contain large quantities of chemicals affecting the environment, including human waste, such as sewage, paper waste, and waste. There are other effects of this plant, for example, the radioactive effect on The environment through the use of gamma ray generators, as well as the impact of noise and noise resulting from the work of heavy equipment and machinery and its effects on human health.

B Air pollution: It means the introduction of pollutants such as gases and chemical compounds into the components of the air as a result of fuel combustion processes, in addition to the emission of fine particles (dust), vapors, and gases. The industries that release such pollutants are the construction industries such as the cement, brick, asphalt, chemical, oil industries, and electrical and thermal power stations, which It works to release large amounts of steam, which leads to acid rain that affects agricultural areas and orchards. The impact of pollution on the living world has become known through the impact on their respiratory systems and thus the disappearance or migration of species of birds and other organisms under the influence of air pollution. She notes This phenomenon occurs in areas that witness air pollution phenomena, especially those areas close to laboratories and factories, as shown in Table (5).

The amount of dust falling on some governorates in 2008

(Amount Of Falling Dust (G/M2/Month		Governorate
Minimum	The Highest Rate	
11	475	Dhi Qar
15	244	Salahaddin

15	113	Karbala
12	110	Wasit
5	76	Baghdad
11	69	Basra
22	53	Kirkuk

Ministry of Planning and Development Cooperation, Environmental Statistics Report for the year (2022, p. 87)

The process of calculating the costs of environmental degradation requires a series of procedures related to preparing research, investigation and audit teams to provide more information to facilitate examination and thus help in decision-making.

It is rare that there are studies to estimate or calculate the costs of environmental degradation in Iraq, with the exception of some studies previously presented by the United Nations Environment Program in 2000, in which the costs of cleaning up the Iraqi environment were estimated at approximately (18) billion dollars, and this does not include services and infrastructure. The Central Bank of Iraq estimates that The costs of sewage facilities and treatments in Iraq amount to (14) billion dollars, and this does not include the costs of treating drinking water networks, nor the costs of hundreds of thousands of tons of sewage that is left untreated and flows into river water, destroying aquatic habitats as well as deteriorating water quality. The costs of disposing of millions of mines and the costs of air pollution in major cities in Iraq are not known. As for estimating the costs of deterioration and pollution resulting from military activities and operations, the remnants of the use of environmentally harmful materials and munitions (such as depleted uranium munitions), and military vehicles and machinery, they have also not been estimated yet.

If we take models of the cost of some sources of deterioration of agricultural lands (according to estimates by the Ministry of Agriculture, the cost of deterioration of one hectare due to erosion and desertification reaches (3) thousand dollars, and the cost of controlling salinity reaches (4) thousand dollars per hectare.

By comparing the costs of environmental degradation in Iraq with the costs of environmental degradation in Egypt, for example, which the World Bank, in cooperation with the United Nations Environment Program in 1999, estimated the costs at (6.2) billion dollars. From these results and the comparison between the Egyptian case and the Iraqi case, we conclude that the levels of pollution In Iraq, it is greater than in Egypt.

Second - The reality of economic growth in Iraq for the period (2014-2022)

The economic growth rate in Iraq on an annual basis, as shown in Table (2), witnessed severe fluctuations during the period (2014-2022), due to the large volume of oil revenues. The growth rate decreased in the years 2014 and 2015 by 2.62% - and 25.03% - in 2015, which is It was most affected by the decline in oil prices, then it returned and growth rose in the year 2016 to reach 2.08% and about 10.85% in 2016 due to the improvement in oil prices. It then witnessed a significant decline in the year 2020 at 17.39% - due to the Corona virus and its repercussions that caused closures in most countries and caused... The cessation of activities internally, in addition to the decline in oil prices, then growth returned positive in the year 2020, as Iraq recorded a growth rate of 2.8%. The value of the gross domestic product with oil at current prices increased for the year 2021 compared to the

previous year by (37.2%) to record (301.4) trillion. dinars, compared to 219.8 trillion dinars in 2020, due to the increase in crude oil activity by (117.4%). The value added to the GDP without oil also recorded an increase by (4.7%). This is attributed to the growth of the activities of the manufacturing industries, electricity and water, transportation and communications, storage, wholesale and retail trade, hotels, and the like, by rates of 41%, 4%, 30.8%, and 32.7%. Then it rose to About 383.06 trillion in 2022, with a growth rate of about (27.19) after the pressures of the Corona virus decreased and the abandonment of the closure policy practiced by most countries, which contributed to the return of demand for crude oil to its levels, and thus the return of Iraq's oil exports, which contributed to supporting economic growth in Iraq, therefore The path of economic growth in Iraq is clearly subject to fluctuations in oil prices resulting from global crises and shocks experienced by the oil markets, which affect the fundamentals of the oil market in terms of demand and supply or the investment motives of investors as a result of being affected by potential risks.

Table (6)

Gross domestic product and its growth rates in Iraq for the period (2014-2022)

Growth Rate	GDP (Million (Dinars	Years
(2.62)	266420384	2014
(25.03)	199715699	2015
2.08	203836832	2016
10.85	225995179	2017
8.57	245378241	2018
6.02	266190232	2019
(17.39)	219887478	2020
37.21	301152818	2021
27.19	383064152	2022

Source: Central Bank of Iraq, Department of Research and Statistics, annual bulletin for years (2014-2022)

the fourth chapter
(Conclusions and recommendations)

CONCLUSIONS

1. The calculation of environmental costs must take into account the economic costs, which include the external costs of the project in relation to the costs of eliminating pollution. . Econometrics of environmental costs shows that environmental calculations can be included
2. In the system of national accounts when calculating or estimating the gross domestic product. There are several methods through which environmental pollution can be reduced or investigated, including direct and indirect government intervention through the use of economic tools as an imposition
3. Taxes, granting subsidies, or creating a market for pollution rights. The negative effects of environmental pollution are not limited to direct effects on living organisms, including, of course, humans. Rather, they extend beyond that to allocating large amounts of money to eliminate and combat pollution and protect the environment.
4. Iraq is one of the countries that suffered from the problem of pollution as a result of economic, industrial, agricultural and other activities, which negatively affected air, water and soil pollution.
5. Industrial activities in Iraq, especially the cement industry, are one of the economic sectors that have the greatest impact on the environment through the release of waste, industrial water, fumes, gases, etc., which negatively affects the environmental environment.

RECOMMENDATIONS

1. It is necessary to determine the optimal size of pollution by determining the permissible amount of pollution by comparing the demand represented by getting rid of pollution and the supply represented by the costs of getting rid of pollution.
2. It is necessary to include in national accounts environmental costs and conservation costs when calculating and estimating the GDP. Environmental costs and conservation costs. There must be specific means and policies to combat or reduce pollution in order to reach the economically required rates. There must be a role for the state to regulate property rights in relation to the environment, especially if the environment is public property, which requires the need for state intervention to protect it, especially if there is a large difference between the private and social costs. It is necessary to develop a comprehensive strategy for the environment in Iraq that includes practical steps to reduce environmental pollution and develop institutional capabilities to improve and preserve the well-being of people and the ecosystem.
3. Make great efforts to reduce the effects of agricultural and industrial economic activities in Iraq by developing the necessary treatments and addressing the obstacles facing the ecosystem and adopting an environmental strategy in it.

REFERENCES

1. Peterson, Wallace, "Income, Employment, and Economic Growth," translated by Salah Al-Dabbagh, Part Two 2011.
2. Bazazo, Ibrahim, Ecotourism and the Foundations of Its Sustainability, Al-Warraq Publishing and Distribution Foundation, Amman, Jordan, first edition, 2010.
3. Hanoush, Ali Hussein Aziz, The Iraqi Environment, Problems and Prospects, Dar Al-Araji for Publishing and Printing, Baghdad, 2004.
4. Hanoush, Ali Hussein Aziz, Environment and Development in Iraq, Dar Al-Diyaa Press, Al-Najaf Al-Ashraf, first edition, 2010.
5. Al-Saadi, Prof. Dr. Hussein Ali, Pollution of the Water Environment in Iraq, Journal of Environmental Research and Sustainable Development, Issue 1, 2018.
6. Sweilem, Muhammad, "Management of Banks and Stock Exchanges," Arab Publishing and Distribution Company, Cairo, 2014.
7. Al-Sayed, Dr. Suheir Muhammad, "Money and Economic Balance," Youth University

Foundation for Printing and Publishing, Alexandria, 2014.
8. Zarwat, Fatima Al-Zahraa, and Jihad bin Othman, Strategy and Development Journal, 2014.
9. Arab Monetary Fund, ed., Arab Capital Markets: Opportunities and Challenges, Abu Dhabi, 1995.
10. Al-Qutaifi, Dr. Abdul Aziz Abdullah, "Economic Growth: Dynamic Growth Theories and the Mathematical Method," Dar Al-Kutub for Printing and Publishing, Baghdad, 2015.
11. Kuznets, Simon, "Modern Economic Growth," translated by a number of economists, New Horizons House, Beirut, 2016.
12. Mansfield, Edwin, and Nariman Behravesh, "Economics," Jordan Book Center, Amman, 1988.
13. Dowidar, Raja Waheed, The Environment, Its Contemporary Scientific Concept and Its Intellectual Depth, Damascus, Dar Al-Fikr, 2004.
14. Arzouki, Ibtihaj Majid, Problems of Environmental Pollution in Iraq, Journal of Legal and Political Sciences 2022.
15. Central Bank of Iraq, Department of Research and Statistics, Annual Bulletin for the Years (2014-2022).
16. Ministry of Planning and Development Cooperation, Environmental Statistics for 2022.

Foreign sources:

1. Scott.J.Callan and Janet M.Thomas "Environmental Economics and management theory " policy and Applications , 2nd ed . the Dryen press 2000 . p.10.