

International Efforts to Combat Global Warming

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Abstract

Global warming is one of the biggest challenges facing humanity in years. It refers to long-term changes in temperature patterns on the planet as a result of natural and human factors. Human factors dominate over natural factors among the causes of global warming. Human activities represented by burning fossil fuels such as coal, oil, and gas constitute the main cause of climate change, through the emission of greenhouse gases such as carbon dioxide and methane, which settle in the atmosphere and trap heat, thus leading to its rise, while natural causes include changes in the activity of the sun, successful volcanic eruptions, and others. These changes have prompted many countries around the world to make efforts and take a set of measures that contribute to confronting and reducing the problem of climate change. Since the early 1990s, the international community has sought to make more efforts in an attempt to find practical solutions to solve the problem of global warming, which has become a source of concern for many countries and international organizations, and these efforts have resulted in the conclusion of many international treaties and agreements.

Keywords: Global warming, climate change, clean energy

Introduction

Man has made several changes to the natural environment, and these changes began to show signs since the great scientific revolution in the seventeenth century, and in the second half of the eighteenth century and Europe's entry into the era of the industrial revolution, which was based on coal, the railway and the steam engine, which began to deepen the crisis of pollution in the air, water and land, and this is what began to threaten the Earth with destruction and devastation.

As the temperature began to rise due to the intensive industrial expansion and the expansion of the agricultural area at the expense of waste and so on, it was clear that the average temperature of the Earth began to rise and it is expected that the temperature of the Earth will continue to rise in the coming decades unless decisive measures are taken in this regard.

The rise in the Earth's temperature leads to the emergence of the phenomenon of global warming, which in turn leads to great damage to the global environment, the most important of which is environmental pollution. Environmental pollution is a global problem that worries the entire world, and is one of the most important negative effects caused by the phenomenon of global warming.

Importance of research:

The problem of environmental pollution caused by global warming is a global problem, due to the change in temperatures towards rising. What concerns us in this study is to address the phenomenon of global warming and study the causes that lead to its occurrence, in addition

to the effects that result from it, with an explanation of how it can be combated through international cooperation.

Research problem:

The phenomenon of global warming is a major environmental and economic threat that goes beyond the regional scope of the state, but rather an issue that concerns the entire world. The dire consequences are not limited to generations only, but future generations will bear the burden of this phenomenon due to the damage it will leave behind, such as threatening food security, the environment, biodiversity, and so on. Therefore, in order to address this problem, our study raises several questions, which are as follows:

- 1- What is global warming, what are its causes and what are its effects?
- 2- How is global warming being combated at the international level?
- 3- What is Iraq's role in working to confront and combat this phenomenon?

Research methodology:

this study is based on the descriptive and inductive approach by following up on information and ideas and defining the phenomenon, its causes and effects, in addition to the analytical approach by analyzing the texts of legal rules concerned with the environment and its protection from the phenomenon of global warming.

Research structure:

In order to cover the research topic in all its important aspects, we have divided it according to a plan that includes the following:

Chapter One: The Conceptual Framework of Global Warming.

The first requirement: the concept of global warming.

The second requirement: the causes and effects of the phenomenon of global warming.

Section Two: International and national efforts to combat the phenomenon of global warming.

The first requirement: international efforts to combat the phenomenon of global warming.

The second requirement: Iraqi efforts to employ clean energy and factors that help reduce the phenomenon of global warming.

The first topic

Conceptual Framework of Global Warming

The phenomenon of global warming is one of the main environmental challenges that has extended since the twenty-first century and appeared as a result of the increase in human activity affecting the composition of the main components of the Earth's atmosphere, as a result of the accumulation of gases, especially carbon dioxide, methane and other types of gases called greenhouse gases that have the advantage of attracting heat, as this phenomenon has become a tangible reality with repercussions on the global arena, due to the disasters it has caused represented by floods, forest fires and desertification, and in order to cover this phenomenon, we have devoted this topic to studying the concept of the phenomenon of global warming and its scientific explanation, in addition to studying its causes and the effects it has on the environment and living organisms, as follows:

The first requirement

The concept of global warming

Global warming is a global phenomenon represented by the increase in the temperature of the Earth's atmosphere, and this warming is nothing but a result of an excessive increase in greenhouse gases. In this requirement, we will shed light on studying the concept of this phenomenon and distinguishing it from others, with a statement of its scientific explanation, by dividing the requirement into two branches as follows:

The first Part

Defining the phenomenon of global warming and distinguishing it from others

In this section, we discussed the definition of the phenomenon of global warming and its distinction from others by dividing it into two paragraphs, as follows:

First: Defining the phenomenon of global warming

Many environmental problems occur as a result of emissions caused by human, scientific and technological activities currently in existence. They have changed and are still working to cause changes in the gases present in the Earth's atmosphere, in addition to climate changes. Climate is defined as a group of factors and conditions that dominate the Earth's atmosphere (Khuli, 1999).

The sun is one of the most important elements that drive energy regulating the Earth's climate. It is also the basis for the movement of weather, oceans, plants, ice, etc. The interaction of the elements that make up the climate leads to a kind of climatic balance between the sun's rays and the temperature emitted in the atmosphere, which leads to stability in the Earth's climate. If a change occurs in one of the elements, it leads to an imbalance and then climatic changes, which in turn lead to problems in the environmental system and then affect humanity as a whole (Goueili, 2002).

Global warming is one of the climate changes that occur in the atmosphere. This phenomenon has been called by many names, some called it global warming, some called it warming or climate change. The French scientist (Joseph Fourier) was the first to discover the phenomenon of global warming or the greenhouse phenomenon in 1824. Then the Swedish scientist "Svante Arrhenius" began conducting studies on this phenomenon in 1896, who launched the theory that burning fossil fuels will increase the amounts of carbon dioxide in the atmosphere and that it will lead to an increase in the temperature of the Earth. He concluded from this a theory that if the concentrations of this gas doubled, we will witness an increase of 4 to 5 degrees in the temperature of the Earth (Fahd, 2022).

The phenomenon of global warming is defined as: "The phenomenon of rising environmental temperature as a result of a change in the flow of thermal energy into and out of the environment." According to the Intergovernmental Panel on Climate Change (IPCC) Most of the increase in global temperatures since the mid-20th century appears to be largely due to increased greenhouse gases emitted by human activities (Goueili, 2002).

Some have defined it as: "The passage of solar energy through the layers of the atmosphere, and its absorption by the greenhouse gases present in the atmosphere. This absorption results in an increase in the Earth's temperature, which leads to climate change, which has a negative impact on the environment" (Al-Ashawi, 2019).

Others defined it as: “The phenomenon of rising temperature in an environment as a result of a change in the flow of thermal energy into and out of the environment” (Abdul Halim, 2005).

Considering all the above-mentioned definitions, the definition of the global warming phenomenon can be summarized by saying: (A significant increase in the temperature of the Earth compared to the natural rates of increase due to an imbalance in the layers of the atmosphere resulting from the accumulation of gases that cause it, which has an unhealthy impact that casts its consequences on the environment in general and on humanity as a whole).

Second: Distinguishing the phenomenon of global warming from others.

It should not be overlooked that climate scientists have distinguished between natural global warming, without which life on Earth would be impossible, and the unprecedented and increasing rise in temperature on the Earth's surface, called global warming, which prompted them to liken this phenomenon to the greenhouse effect, because greenhouse gases do the same job as these greenhouses in trapping heat inside a space. The inner layer of the atmosphere appears to be surrounded by another insulating layer of greenhouse gases that does the same job as greenhouses, which also does not allow solar radiation to enter and does not allow most of it to exit, causing heat to be trapped inside, which then affects all creatures, including humans, animals and plants (Belkacem, 2018).

Without this cover, it would be impossible for it to live and exist, and it would be impossible to know many natural phenomena. It has important functions because it is God's creation. It works as a barrier during the day that protects the Earth's surface from harmful radiation emitted by the sun, and during the night it works as a comprehensive cover that helps retain the heat of the day and prevents it from spreading or leaking into outer space.

The second part

The scientific explanation for global warming

Among the rulings of God Almighty is that He made laws that govern this universe and which made it possible for life to exist on the surface of this planet, unlike other known planets in different solar systems.

Among these laws is the moderation of heat and cold, which allows living organisms to live on the surface of the Earth without problems. The Earth is distinguished from other planets by the atmosphere that surrounds it and its main components that have remained constant for millions of years. According to climate scientists, the atmosphere surrounding the Earth plays a major role in regulating temperature rates, as this atmosphere does not allow all the rays emitted from the sun towards the Earth to reach the surface of the latter, so that about 30% of them are reflected into space and about 20% are absorbed. Therefore, 50% of the rays reach the surface of the Earth and the sea waters to warm them (Belkacem, 2018).

When the sun's rays are absent, the Earth radiates the amount that was absorbed during the day in the form of infrared rays towards the Earth. If it were not for the atmosphere, all of these rays would be emitted towards the Earth, but with the presence of this atmosphere, and specifically by containing what is called greenhouse gases in French (Greenhouse gas (GES)) which, thanks to its chemical composition, can absorb infrared rays reflected from the Earth into space and then reflect them back to the Earth, thus maintaining a moderate temperature. This is called the greenhouse effect.

Climate and Earth scientists liken this phenomenon to greenhouses or glass houses because they do the same job as the latter in terms of trapping heat inside a space, by considering that the Earth is placed in a large plastic house. This accurate description refers to the current state of the world and its suffering due to what is known as the greenhouse effect, which leads to a phenomenon of trapping heat inside a space. However, there is a difference between them. In plastic houses, hot air is prevented from leaving the plastic house, while in the case of the atmosphere, infrared rays are absorbed and returned again to the Earth (Hussein & Hassoun, 2018).

The second requirement

Causes and effects of global warming

In the first section, we discussed the concept of the global warming phenomenon and the reasons for its occurrence. In this section, we will reveal the causes of the global warming phenomenon in its natural and human forms, and then explain the effects and risks resulting from this phenomenon. Among the risks and effects of global warming are those resulting from greenhouse gases and pollutants that affect living organisms and the environment in general. Based on this, we divided this section into two branches, as follows:

The first topic

Causes of global warming

The causes of global warming are divided into two parts, as follows:

First: Natural causes

Natural causes of global warming include many factors such as changes in solar activity, volcanoes that release greenhouse gases and particles, changes in air and sea currents, and natural changes in the composition of the atmosphere. However, human activities are the main and most influential cause of increased global warming through greenhouse gas emissions and changes in land use, which we will discuss in the second paragraph.

Other natural factors that can contribute to the phenomenon of global warming are changes in volcanic activity and its effects on the composition of the atmosphere and the upper atmosphere, in addition to changes in the proportions of natural gases such as carbon dioxide, methane and water vapor. These natural factors can play a role in modifying weather and climate phenomena in the long term (Bachelor, 2015).

Natural phenomena such as changes in forest and water structure, air and soil pollution, modify the carbon and energy cycle in the ecosystem, affecting the overall thermal balance of the planet and contributing to increased heat retention. In addition, changes in the extent of ice and snow can play an important role in enhancing the phenomenon of global warming, as ice and snow absorb heat and reflect sunlight. When the volume of ice and snow decreases due to rising temperatures, heat absorption increases in the polar regions, which increases heat retention in the atmosphere.

Second: Unnatural causes

The non-natural (human) causes of global warming include several factors, including (Ben Rahla, 2019): 1) Greenhouse gas emissions: such as carbon dioxide (CO₂), methane (CH₄) and nitrogen oxides (NO_x), which are emitted in large quantities from various sources such as burning fossil fuels, energy production and agriculture; 2) Land use change: such as shifts in

land use from forests to farms or cities, which affect the land's ability to absorb carbon dioxide; 3) Heavy industries: Greenhouse gas emissions from heavy industries such as steel and cement industries. Many international reports issued by international organizations have indicated that the main reason for the growth of the global warming phenomenon is the wrong practices carried out by humans during production in order to gain and achieve profits in the production of goods, especially global monopolistic companies without regard to the disasters that may result; 4) Industrial agriculture: such as the use of chemical fertilizers and livestock farming, which increases greenhouse gas emissions such as methane; 5) Environmental neglect and car transport: The use of fossil fuel-powered cars leads to high carbon dioxide emissions; 6) Overconsumption and waste: which increases demand for natural resources and leads to more emissions and pollution; 7) Wars and conflicts: which may lead to the destruction of the environment and the release of many environmental pollutants as a result of clashes and destruction; 8) Technology changes: Old and inefficient technologies may produce more emissions than newer, sustainable technologies; 9) Demographic changes: such as population growth and changes in population distribution, which increases demand for resources and leads to more emissions.

Therefore, all the aforementioned factors work together to increase the concentration of greenhouse gases in the atmosphere, which leads to heat retention, an increase in the temperature of the Earth's surface, and the resulting climate changes.

The second topic

The effects and risks resulting from global warming

The effects and risks resulting from global warming can be divided as follows:

First, agricultural impacts:

One of the things that will be affected by the rise in temperature is agriculture, as climate change affects it from extreme heat, lack of rain, and increased carbon dioxide. For example, the main grain-growing areas in North America are expected to become hotter and drier, and it is also likely that the transfer of rain in that region will negatively affect agriculture in general. Also, forests, for example, are adapted to a narrow range of temperatures and humidity. Scientists who study the coniferous forests of the United States located in the Pacific Northwest indicate the possibility of a severe shortage in the range of Douglas fir trees (which are the main soft products that industrial forests can decline in. This type of tree requires a huge amount of moisture in the soil and humidity will drop seriously with the expected warming. If huge efforts are not made to bring in and nurture subtropical tree species, large areas could become barren lands. The expected result of the decrease in agricultural crops is an increase in the prices of food in areas that depend mainly on agriculture, and this will threaten the lives of millions of people (Shalan, 2010).

Second: Drought and desertification in the environment:

Another phenomenon that has become a threat to humanity as a result of the expected rise in temperature is drought and desertification, which in the past occurred in some countries as a result of natural climate changes, but now it has become a greater result. Other factors intervene, as the increase in temperature works to reduce soil moisture to a large extent, which leads to severe drought, especially in developing countries, and this results in a decline in the resulting production, on the one hand, and on the other hand, the use of agricultural land for grazing and cutting down trees will lead to soil erosion and increased desertification, which has

the greatest impact on the suffering of peoples, especially in Africa, who suffer from hunger and malnutrition, which will push them to leave their places of residence and move to other places in search of food (Rabie, 2024).

Third: Biodiversity:

Climate change over the past 30 years has severely damaged some of the world's most sensitive biological systems, particularly coral reefs and tropical forests. These systems are known for having the highest levels of biodiversity, with some species yet to be discovered. Coral reefs face a volatile future, and negative human impacts may affect them to end up as ineffective ecosystems. Many lakes and wetlands will also be negatively affected by climate change. These water areas are important habitats for migratory birds and waterfowl, as the latter will be affected by the loss of their nesting sites and the most important source of food, as well as grasslands, shrublands and savannas, and therefore birds will not find a place to stay, and as a result their numbers may decrease (Bachelor, 2015).

Fourth: Food security:

Climate variability affects all forms of agricultural production. Losses associated with fundamental climate variability are greater than those associated with catastrophic, local weather-related variability such as hurricanes and floods. Whatever changes occur, they will persist for decades or centuries, as climate is inherently inert. The potential impacts of climate change on agricultural production will depend not only on the climate itself, but also on the ability of crops to adapt to climate change.

Significant changes in the geographical distribution of climatic regions and associated land-use patterns may alter the geographical balance of crops, including a potential positive impact on production in developed countries in temperate zones and a negative impact on developing countries in the tropics.

The second topic

International and national efforts to combat global warming

The international community has begun to pay attention to the problem of climate change and rising temperatures. The phenomenon of global warming represents one of the most dangerous environmental problems due to the serious environmental and human damage it causes. Among these damages are the studies that have shown the danger of global temperatures rising between (1.5 - 4.5) degrees Celsius, which poses a threat to human life and other living organisms. This is what prompted the world to move to confront this phenomenon. Perhaps one of the most important international efforts to confront the phenomenon of global warming is the Vienna Convention on the Protection of the Ozone Layer in 1985 and the Montreal Protocol on Substances that Deplete the Ozone Layer in 1978, and the United Nations Framework Convention on Climate Change in 1992 and its Kyoto Protocol in 1997, in addition to the Iraqi national efforts, which also play a role in employing clean energy to reduce the phenomenon of global warming. Accordingly, we have divided this topic as follows:

The first requirement: international agreements on environmental protection. The second requirement: Iraqi national efforts to contribute to the use of clean energy to reduce the phenomenon of global warming.

The first requirement

International agreements on environmental protection

The international community has addressed the phenomenon of global warming through many specialized agencies in the United Nations and some international conferences that were held as a result of the increase in the severity of sudden climate fluctuations and the aggravation of the economic effects of this phenomenon and its wide effects on the environment. Due to its seriousness, it has moved towards agreements, as countries have taken it upon themselves to commit to some international legal rules and international agreements that would address this phenomenon. Based on that, we have divided this requirement as follows:

The first branch

Vienna Convention for the Protection of the Ozone Layer of 1985 and Montreal Protocol on Substances that Deplete the Ozone Layer of 1987

The ozone layer is of great importance in preserving life on the surface of the Earth, as it is a protective shield for the Earth from the danger of ultraviolet rays coming from the sun, and does not allow them to pass except to the required extent. As a result, it has become a concern of the international community, which has moved towards concluding agreements on protecting this layer, which has been depleted as a result of human activities releasing pollutants into the atmosphere, which has led to a change in its proportions. Studies have shown that one of the causes of the global warming phenomenon is the depletion of the ozone layer, as one of the properties of the chemical compounds that deplete this layer is the absorption of heat, which contributes greatly to the phenomenon of warming, which represents 15 to 20 percent of the expected heat (Abdul Jabbar, 2006).

Indeed, an agreement was concluded in Vienna during the period from 18-22 March 1985, with the participation of fifty countries and international organizations. It included a preamble and twenty-one articles and entered into force on 22 September 1988. This agreement contains a general commitment by the parties to protect this layer in order to preserve the environment. It is a document with a goal and does not impose general obligations on the parties, who must take appropriate measures in accordance with its provisions in order to protect the environment from the effects resulting from human activities that cause modifications in the ozone layer. To achieve this goal, detailed rules are established, but rather a constitutional framework is established that produces these rules (Al-Dawoudi, 2015). As Article Two of that agreement stipulated that it should do the following: 1) Cooperation through systematic monitoring, research and information exchange to understand the effects of human activities on the ozone layer; 2) Take appropriate legislative or administrative measures and cooperate to prevent human activities that are shown to have destructive effects on the ozone layer; 3) Taking into account developing countries and providing them with financial assistance in order to limit industries that lead to ozone depletion and thus harm the environment; 4) Cooperation between States Parties and international organizations in the field of information exchange and the development of collective measures to protect the ozone layer.

As for the Montreal Protocol on Substances that Deplete the Ozone Layer, 1987, it is a supplement to the Vienna Convention on the Protection of the Ozone Layer, 1985, as it relied on the framework provided by the Convention and called for the development of schedules for reducing the use of ozone-depleting substances, represented by chlorofluorocarbons, at

1986 levels by 1989, and scheduling a long-term reduction in consumption by 30 percent by 1994 and 50 percent by 1999. Its implementation came at a uniform pace among developing countries (Abdul Jabbar, 2006).

The second branch

United Nations Framework Convention on Climate Change 1992 and its Kyoto Protocol

The necessary protection and real treatment of environmental problems in general requires knowing the causes of harmful phenomena and then combating them later. The United Nations Framework Convention and its Kyoto Protocol followed this path.

The legal principles of the Convention are characterized by being very general and abstract because they do not provide for an explicit penalty for violating them. Therefore, they require detailed rules that create mutual rights and obligations. In this way, they differ from legal rules that do not reach this level of generality and abstraction, but rather contain two parts, one of which is criminalization and the other is determining the penalty for this criminalization (Shaan, 2010).

Article 3 of the Framework Convention established a set of principles, namely common but differentiated responsibility, equity, sustainable development, and the precautionary principle.

The Framework Agreement also included many different obligations from one country to another, with a mention of the reasons for the difference, within the framework of Article Four of the Agreement, which divided the countries concerned by its provisions into three sections, which are:

First: Annex countries: These are the industrial countries responsible for the rise in the Earth's temperature and which are going through a transition to a market economy. They are 41 countries, including (Sweden, Spain, Switzerland, Finland, Estonia, Germany).

Second: Annex II countries: These are countries that do not go through the market economy stage, and there are 24 of them (Australia, Iceland, Italy, Belgium).

Third: Countries not included in Annex I: They include the majority of developing countries, which constitute 153 countries not concerned with reducing greenhouse gases.

The Framework Agreement set general obligations for each section of the aforementioned countries, and with regard to the most important weight, which are the industrial countries that have a great influence on the world due to their giant activities, Article Four included some obligations as follows: 1) Taking measures to mitigate climate change; 2) Promoting sustainable development and cooperation to conserve greenhouse gas sinks and reservoirs; 3) International cooperation to adapt to climate change by developing appropriate plans to manage tourist areas, water and agricultural resources; 4) Develop inventories of anthropogenic greenhouse gases; 5) International cooperation for the exchange of information related to scientific research and related technology; 6) Reporting to the Conference of the Parties information on implementation in accordance with Article 12; 7) Education, training and comprehensive awareness through climate change risk awareness programmers.

According to this agreement, all the contracting states agree that the developed and industrialized countries bear the greatest responsibility for climate change due to the emissions they have caused since the beginning of the industrial revolution in Europe. They are also the only ones addressed to reduce greenhouse gas emissions, so they are committed to submitting their national inventory lists in two stages: the first according to the joint reporting

model, which is an electronic database whose design is determined in all these countries and includes data on the quantity and percentage of emissions, and the extent of progress in national efforts to combat them. The second is the national inventory report, which includes information on how these lists were prepared and the sectors whose emissions were measured (Al-Maksousi, 2020).

As for the protocol attached to it, called (Kyoto) in 1997, it is considered a preliminary step to implement the framework agreement. This protocol indicated legal obligations in order to reduce the emission of four greenhouse gases produced by industrialized countries, including: (carbon dioxide, methane, fluorine, hydro fluorocarbons). The obligations specified by the protocol come in the form of two groups. The first includes obligations undertaken by all contracting parties, while the second is borne by developed countries towards developing countries (Al-Najjar, 2018).

The second requirement

Iraqi efforts to employ clean energy and factors that help reduce global warming

The effects of climate change on Iraq are among the worst in the world. With temperatures consistently rising to 50 degrees Celsius during the summer months, and the historic marshlands in the south suffering from severe drought, this is a critical time for the Iraqi government to steer the country on the right path to adapt to climate change. Accordingly, we have dedicated this requirement to studying Iraqi efforts to address the phenomenon of global warming, while stating the most effective factors in reducing it, as follows:

The first branch

Iraqi efforts to employ clean energy

The Iraqi efforts to protect the environment and confront environmental disasters are pioneering efforts. Since the eighteenth century, and in particular after Iraq was exposed to violations and wars in 1991 and 2003, and the long-term economic sanctions imposed on it, the burdens on the environment of Iraq have been heavy, as the environment has suffered severe damage that has become difficult to avoid as a result of the accumulation of lethal weapons, bombing, sabotage, fires, the release of many gaseous pollutants, and the leakage of nuclear radiation into the environment (Fahd, 2022).

Although Iraq bears only a very small part of the responsibility for emitting greenhouse gases, and according to the report of the Forum for Environment and Development in 2011, Iraq is one of the countries that produces only (5%) of the greenhouse gases that cause global warming, the country has witnessed an unprecedented rise in temperature, which necessitated the concerted efforts of the state to confront this phenomenon (Mohammed, 2010).

Stakeholder consultations were held within the framework of the United Nations Framework Convention on Climate Change and in cooperation with the Ministry of Health and Environment. The United Nations Development Program organized a two-day workshop on this phenomenon and the use of clean energy factors to reduce it. It was attended by representatives from the Ministries of Oil, Electricity, Trade, Finance, Transport, Housing, Agriculture, Planning, Science, Technology, Reconstruction, Municipalities, and the Baghdad Municipality, in addition to research and leading non-governmental organizations, including the National Center for Climate Change and the Earthquake Prediction Center.

In 2021, Iraq experienced its second driest season in 40 years due to record low rainfall. Water flows from the Euphrates and Tigris rivers, which provide up to 98% of Iraq's surface water, declined. The historic marshes in the south, a wonder of natural heritage, also dried up. Temperatures soared, with the highest temperature recorded at around 54 degrees Celsius in Basra, devastating agriculture (Abdul-Yameh, 2024).

Climate change in Iraq not only affects the agricultural sector, but also poses a serious threat to basic human rights, poses obstacles to sustainable development, and exacerbates the environmental, security, political, and economic challenges facing the country. As a result, Iraq participated in the 26th Conference of the Parties to the Climate Change Conference in Glasgow in 2021, and became one of the most important countries to participate in the conference. Therefore, the United Nations Development Program conducted a series of workshops to determine the priorities of the agenda and identify all areas available for negotiation with the participation of forty members, representatives of several Iraqi ministries such as the Ministry of Environment, Agriculture, Oil, and Foreign Affairs, in addition to representatives of the Kurdistan Regional Government in Iraq, in order to address this phenomenon and employ renewable energy in this regard. Renewable energy is energy generated from natural, non-traditional, continuous, inexhaustible sources, and it is available all over the world, as it is clean energy that does not pollute the environment and preserves public health, in addition to being economical and having a great economic return.

This is not new to UNDP, given its extensive experience in this field since the Paris Agreement to limit global warming in 2015, where it supported one hundred and ninety-six parties participating in that conference, including Iraq. Since then, UNDP has been supporting the Government of Iraq to fulfill its obligations under this historic agreement and has been helping to develop Iraq's nationally determined contributions and helping it develop climate plans in line with the desired goals of the 2015 Paris Climate Agreement.

The second branch

Factors that help reduce global warming

There are some ways and factors to confront the phenomenon of global warming, which we will explain as follows:

First: The role of climate architectural design in saving energy and protecting the environment

Solar energy is a source of renewable and clean energy and interest in it has remained as a primary source of energy in the lives of humans and other living beings since ancient times. Allowing sunlight to enter the home space to warm it in the winter is a solar heating system, which is what is called today the climatic architectural design of buildings that leads to significant energy savings. Also, using elements to shade building facades in the summer contributes to reducing cooling costs and makes the place more comfortable to live or work in (Bashir, 2022).

Second: The role of the government in confronting the phenomenon of global warming

Protecting the health of the public and the environment from pollutants of various sources is one of the most important roles assigned to the government, represented by its various institutions, in various fields of development. Since transportation contributes a high percentage of these pollutants, the following measures must be taken to reduce them: 1) Work on establishing fixed and mobile stations to measure the level of pollution from gases and

particles emitted from transportation; 2) Reduce taxes on the purchase of highly efficient vehicles; 3) Setting strict instructions regarding old vehicles in terms of importing, renewing their licenses and maintaining them; 4) Activating the annual vehicle inspection system and introducing an inspection of the percentage of exhaust gases emitted from the vehicle; 5) Working to reduce the prices of high-quality fuel to encourage its use. Establishing a regular public transportation network; 6) Reforestation of areas, especially on both sides of roads.

Third: Procedures related to institutions and associations

The role of institutions and associations has become prominent and influential on a global scale in directing public opinion on important issues such as environmental issues and their preservation and influencing decision-makers. Therefore, the integration and activation of roles requires taking some measures, some of which we will mention, as an example: 1) The necessity of periodic maintenance of vehicles and choosing the appropriate fuel; 2) Encouraging the use of vehicles that require special types of fuel, such as compressed gas or electricity, as they reduce greenhouse gas emissions and improve their quality; 3) Encouraging companies to reduce their costs by using bicycles for short trips; 4) Implementing awareness programmes for citizens through the media, in addition to posters and leaflets, to explain the dangers of increased pollution on the environment; 5) Adopt a clean period program to encourage citizens to use available alternatives such as public transportation, bicycles and walking.

Conclusion

At the end of our study of the research topic, we reached some results and recommendations that can be summarized as follows: 1) Climate change has become a global problem that concerns all countries of the world, and thus it has become a serious challenge facing all of humanity; 2) Global warming is a phenomenon that constitutes important environmental obstacles and has extended since the twenty-first century, as a result of increased human activity that affects the composition of the main components of the Earth's atmosphere; 3) The international community has worked to address the phenomenon of global warming through many international agreements and conferences, as countries have taken it upon themselves to adhere to some legal rules and international agreements that would address the phenomenon of global warming at the international and national levels; 4) The United Nations is the international organization that has made unprecedented and pioneering efforts in the field of climate protection by establishing what is known as the Intergovernmental Panel on Climate Change and negotiating international instruments for climate protection; 5) All agreements related to climate change, although they have attracted the world's attention, have not reached the level of solving the problem of reducing greenhouse gas emissions and reducing the use of fossil energy sources.

Suggestions

Developed countries must bear a greater burden than poor countries in addressing climate change, known as the principle of common but differentiated responsibilities. The need to encourage countries to cooperate to reduce the phenomenon of global warming, by joining agreements aimed at protecting the environment. We call for the need for governments, institutions and citizens to work together to follow preventive measures to reduce this destructive phenomenon.

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