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THE IMPACT OF GLOBAL WARMING ON CLIMATE CHANGE AND
THE ROLE OF THE PARIS AGREEMENT IN MAINTAINING THE RATE
OF TEMPERATURE RISE

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ABSTRACT:

Climate change is one of the greatest and most pressing global challenges of our time, as scientific evidence indicates that greenhouse gas emissions resulting from human activities that cause global warming have actually contributed over the past 150 years to an increase in average global temperatures by about 1.0 degrees Celsius above levels Pre-industrial, and global warming is likely - if it continues to rise at the current rate - to 1.5 degrees Celsius above pre-industrial levels between 2030 and 2052. The 2015 Paris Agreement on Climate Change is a very important legal step. This agreement came after a long series of difficult international conferences and discussions, where the parties to the United Nations Emergency Convention on Climate Change had to overcome their national interests on the one hand and create a modern international legal base equipped with effective and non-traditional mechanisms in order to protect the environment on the other hand. It can be said that the Paris Agreement is not just a complementary agreement or dependent on a previous declaration or agreement, but rather it is a fundamental turning point in the rules of international law for the protection of the environment.

INTRODUCTION

Global warming received the attention of the international community in the late 1980s. In 2010, just over half of the population of the United States considered the problem a major concern to themselves or their families, while 73% of Latin Americans and 74% of developed Asia shared them. This view, and an average of 54% of respondents in 2015 agreed to be a "very serious

problem", but Americans and Chinese (whose economies cause the largest annual CO₂ emissions) expressed modest or modest concern about the problem. People all over the world in 2011 attributed global warming more often to human activities than to natural causes, with the exception of the United States, where half of the population blamed nature as the cause of global warming. Public reaction to global warming is growing and concern is spreading about its effects, with many seeing it as the worst global threat. In a 2019 CBS poll, 64% of the US population described climate change as a "crisis" or a "serious problem", and 44% of them acknowledged that human activity was indeed a significant contributor to the problem (Philip Shabec off, 1983, p. 1. Walter Sullivan, 1983, p. IV:18. Phones: Elliott (1977-89), Oct. 24, 1983. Oreskes, 2008, p. 113).

The international community pledged to limit global warming to “below two degrees Celsius” and to “follow up efforts to stop the rise in temperature at 1.5 degrees Celsius.” This is the most important point in the historic agreement approved by 195 countries on Saturday evening (12 December 2015) in Paris to combat global warming. The repercussions of this warming threaten the planet with climatic disasters. In view of what was stated at the Climate Summit on September 24, 2019 through a scientific report warning of a major threat to humanity from the seas, Guterres called on the countries of the world to abide by their commitments, according to the findings of the Climate Conference, which was held in Paris in 2015, where a summit was held. The summit came on the sidelines of the annual meetings of the United Nations General Assembly, and an official of the World Meteorological Organization said on Monday that it is expected that the average temperatures in the world will rise during the five years. forecast, by at least 1.2-1.3 degrees Celsius, above pre-industrial levels.

Objectives of the study

- 1- Understand the effects of climate change.
- 2- Shedding light on the new legal aspects contained in the 2015 Paris Climate Agreement
- 3- Indicating the extent of its importance in developing the rules of international law for environmental protection.
- 4- Draw the attention of specialists to the importance and danger of the rate of global temperature rise.

Research importance

The importance of the research is embodied in highlighting the effective role of the Paris Agreement, which will directly affect decision-making that contribute to maintaining the rate of global temperature rise, as the 2015 Paris Climate Agreement is an international revolution and a new cornerstone in international law to protect the environment, on which many international obligations will be built. It is imposed on the states that are party to it because of the provisions and clauses that were not preceded by any other agreement.

Research problem:

The problem of the research revolves around the issue of countries' lack of commitment to the mechanisms and solutions set by previous climate agreements, so the researcher tries to analyze the Paris Climate Agreement 2015 to show the extent to which it is binding on countries and whether the application of this agreement will solve the problems of global environmental pollution, and what are the new issues that distinguish this agreement from similar ones.

Given the importance of the topic, we decided to address this topic by answering the following questions:

- What is the concept of the issue of climate change?
- What new issues did the 2015 Paris climate agreement bring?
- What is the green fund and how important is it in the field of environmental protection?
- What are the means and solutions provided by the Paris Climate Agreement 2015 in order to reach practical results?

STUDY METHODOLOGY

Studying such a topic in a comprehensive manner for all points requires us to use a set of approaches, such as the analytical approach that helped us study the effective role of the 2015 Paris Agreement, which will directly affect decision-making that contributes to maintaining the rate of global temperature rise, and given that the research aims to Recognizing the effects of climate change, the realistic approach has helped us to contact the international reality and know its conditions through the analysis of events based on drawing the attention of specialists to the importance and seriousness of the rate of global temperature rise, in addition to following the legal approach that allowed us to identify and analyze the legal aspects that surround the aspects The new legal provisions contained in the 2015 Paris Climate Agreement, and the extent of their importance in developing the rules of international law for the protection of the environment, of course, without forgetting to mention our reliance on the desk survey method through our reference to the literature and previous studies that dealt with topics related to the subject of our study.

The first topic: the concept of global warming and its reflection on climate change under the international law for environmental protection

Some see the environment as the medium in which man and other living creatures live and practice their activities. Others see the environment as the framework in which a person lives and obtains the necessities of his life from food and medicine (Abdul-Hadi, Abdul-Aziz Mukhaymar, 1985, p.7). The environment is also defined as everything that exists outside the human entity and all the assets that surround it. (Medhat Islam Ahmed, 1990, p. 2).

As for environmental issues, researchers differed in their exact classification. The 19th special session of the United Nations General Assembly indicated that

the environmental sectors and topics that require immediate action are: fresh water, seas, oceans, forests, energy, transportation, climate, and chemicals. Toxic, hazardous waste, radioactive waste, land, sustainable agriculture, desertification and drought, biodiversity, sustainable tourism, small island developing states, environmental disasters, accidents with a negative impact on the environment (Earth Summit 1998, pp.29-60).

As for the former Secretary-General of the United Nations, Kofi Annan, he identified environmental problems, namely: protecting the ozone layer, preserving biodiversity, keeping pace with climate change, protecting oceans and seas, controlling the movement of hazardous waste and controlling the trade of endangered wildlife (Kofi Annan, 1997, P. 4).

The first requirement: global warming and climate change

Definition of global warming

Global warming can be defined as: “The phenomenon in which the absorption and emission of infrared radiation leads to heating the Earth’s surface as a result of the increase in the concentration of greenhouse gases in the atmosphere” (Levenson (1989), p. 32) (Lu, Jian, 2007, p.34).

It should be noted that there is scientific consensus (“Joint science academics’ statement: The science of climate change.” Royal Society. 2001-05-17), that the increase in the proportion of greenhouse gases in the atmosphere is due to human activity, which is the biggest cause of measured warming since the beginning of the Industrial Revolution, and that the observed warming cannot be convincingly and adequately attributed to mere natural causes. The past fifty years is the period in which attention and focus was paid to this phenomenon, as the actual and integrated measurements began to determine the increase in the Earth’s temperature, although the issue of global warming had begun to interest in it before that.

Global warming was discovered by John Fourier in 1824, but Svante Arrhenius was the first to quantify this phenomenon in 1896 AD (The Discovery of Global Warming, March 2015).Natural (ie, non-human) greenhouse gases have an average warming effect of about 33°C, without which life on Earth would be impossible (Ulrich Cubasch, 2018, p. 3)The main greenhouse gases are water vapor, which causes 36 to 70% of global warming (not including clouds), carbon dioxide (CO₂), which causes 9-26%, and methane (CH₄), which causes 4 to 9% of global warming. Thermal, ozone, which causes 3-7% (Kiehl, J. T. (1997), p 4).

Human activity since the industrial revolution has led to an increase in the release of greenhouse gases into the atmosphere, especially carbon dioxide and methane, in addition to ozone in the troposphere, chlorofluorocarbons and nitrous oxide. The concentrations of CO₂ and CH₄ in atmospheric air have increased by 36% and 148%, respectively, since the middle of the eighteenth century (U.S. EPA, 2007, p.2).

These levels are higher than any value recorded or established in the past 650,000 years based on data from ice cores (A. Neftel, E. Moor, H. Oeschger & B. Stauffer, 1985, p 3), while some evidence Indirect geology indicates that CO₂ values did not reach this current level until about 20 million years ago (Paul N. Pearson¹ & Martin R. Palmer, 2000, p5). About 75% of the increase in carbon dioxide is due to burning fossil fuels over the past 20 years, while the rest is mostly due to human consumption of natural resources such as deforestation (Climate Change 2001).

It is worth noting that the factors causing global warming are still present at the present time, and they are constantly increasing. It is not possible to limit this phenomenon and control the rate of future increase except through the occurrence of social, technical and natural changes. A special report by the Intergovernmental Panel on Climate Change gave different scenarios about the change in the rate of emissions and gas emissions in the future, indicating that the proportion of CO₂ gas will increase from 541 to 970 ppm (parts of a million) in 2100 (Prentice, I. Colin, 2001, p 4) Especially since the reserves of fossil fuels will be sufficient in the coming period to reach such levels, in the event that coal, oil sands and methane hydrates are harnessed and exploited to a large extent.

The average Earth temperature increased by 0.75 °C for the period between 1860 and 1900, according to the mechanically measured temperature record, which shows the variations in temperature relative to the air and oceans measured by thermal sensors. It is not likely that the increase in the temperature of city centers compared to its surroundings significantly affected this value, as it is estimated that this phenomenon has caused a temperature increase of 0.02 °C since 1900 (Foukal, Peter , 2006, p 5).

Since 1979 the land has warmed twice as much as the ocean (0.25 °C per decade vs. 0.13 °C per decade IPCC Fourth Assessment Report, Chapter 3, 2007, p3) effective for the oceans and because the oceans lose more heat as a result of evaporation.[41] Therefore, for the northern hemisphere, the increase in temperature is greater than its southern counterpart, because the proportion of land in the northern hemisphere is greater, and the northern hemisphere covers large areas of seasonal snow and ice caps, which is subject to the opposite effect of snowmelt, as the radiative regression coefficient decreases in Those areas which means more heat absorption. Although the greenhouse gas emissions are greater in the northern hemisphere than in the southern hemisphere, this does not lead to a difference in warming because the greenhouse gas effect lasts long enough for the northern and southern hemispheres to mix. Rowan T. Sutton, Buwen Dong, Jonathan M. Gregory, 2007, p 7).

According to estimates from NASA's Goddard Institute for Space Studies, 2005 was the warmest year in which the Earth's temperature was recorded, since the late nineteenth century, when reliable and widespread measurement methods appeared, exceeding 1998 by a few parts of a hundredth of a degree (Hansen, James E. 2006, p 2) Whereas estimates by the World Meteorological Organization and the Climatic Research Unit at the University of East Anglia indicate that 2005 was the second warmest year after 1998 (Keith, DW, M. Ha-

Duong and JK Stolar off, 2006, p 5) Temperatures in 1998 were abnormally warm due to the occurrence of the largest El Nino of the last century in that year.

The effects of global warming on the climate

Environmental Impacts

In 2005 and 2007 the ice in the Arctic receded to its maximum
Global warming negatively affects the environment and changes the features of the Earth's surface because it contributes to the melting of ice and the rise in sea levels, which causes the sinking of low-lying areas and coasts.

Economic impacts

According to the report by Nicholas Stern, an English economist, global warming will lead to an economic cost of \$ 500 billion, taking into account all generations (current and future) who suffer the consequences of it. In 2007, for the first time, the Handicap World Fund included climate change in its list of threats for the year 2007 at the Infrastructure Risk Infrastructure Milestones and Business Leaders, and other sites. The main threats were war and political conflict, and illegal industrial and urban development. In 2012 the first Munich Report of October 17, 2012 (on the period from 1980 to 2011) finds that North America suffered the strongest financial losses from weather-related events in 1980, with losses amounting to more than 30,000 1 dead and 1 billion dollars (878 million euros) for the cost of managing and repairing climate disasters. The same report saw that the number of extremist events had doubled worldwide (and doubled in Europe). In 2015, economists can no longer provide numbers, but consider the potential cost endless. Henri de Castries, President of AXA, said in May 2015, at the Climate Summit: "One world + 2°C can be secured again, 1 world +4°C will not be". According to a 2013 World Bank report, annual losses and damages associated with climate events have risen from \$50 billion in the 1990s to nearly \$200 billion over the last decade.

The expected phenomena as a result of global warming

- The occurrence of agricultural disasters and the loss of some crops
- Increased likelihood of extreme weather events
- Increased forest fires
- Increased flooding because large portions of ice will melt and lead to sea level rise
- The sinking of low-lying islands and coastal cities
- The occurrence of drought waves and desertification of large areas of the land
- Increasing the number and intensity of storms and hurricanes
- The spread of infectious diseases in the world
- Extinction of many living creatures
- The many fluctuations in the atmosphere

In this regard, Dr. Colin Summer Hayes, a geologist and head of the Underwater Technology Association, believes that the issue of climate change is the main

cause of the emission of certain gases to the atmosphere, the increase of which leads to an increase in temperatures, and these gases are: nitrous oxide, ozone gas and water vapor, which are released. On carbon dioxide, chlorofluorocarbons (Colin Summerhayes, 2010, pg. 401), these gases are collectively termed “greenhouse gases”, and they are the ones that produced the greenhouse effect or the so-called greenhouse effect, and these gases are formed as a result of human industrial activities. Which leads to the destruction of the ozone layer (Robert Ambroki, 1995, pp. 153-154).

It is worth noting that international interest in the phenomenon of climate change began in 1970, when meteorologists began to question the impact of human activities on climate change and the consequent specific diseases such as malaria, sea level rise, and the movement of climatic regions towards the poles and the transition of ecosystems. Actual work on the ozone layer began in 1985 when the United Nations entered into a partnership with the World Meteorological Organization and the International Council of Scientific Unions ICSU and they reached an agreement to hold an international conference on climate change in Villach - Austria (the first Montreal Protocol, Vienna Convention for the Protection of the Ozone Layer).

In 1988, the IPCC was established as a joint effort by the United Nations Environment Program and the World Meteorological Organization to agree on technical and scientific foundations. The commission proposed several measures to stabilize the levels of gas emissions, and the commission concluded in 1990 that the average temperature of the earth would rise by one degree Celsius by 2025.

Despite the large number of international agreements and protocols that try to establish a binding mechanism to reduce the rate of greenhouse gas emissions, but they were not able to control emissions as required, Dr. Colin Summer Hayes warned in 2010 in his interview with the Journal of the World Health Organization that if emissions continue in this way, it will cause an increase in emissions. Temperatures, which lead to a 1.5 meter rise in sea level in the future, knowing that approximately 146 million people live at an altitude of less than one meter from sea level, so not taking any serious steps about climate change in the coming years will cause this problem. Genocide is real.

The second requirement: the United Nations Framework Convention on Climate Change and its Kyoto Protocol (establishment of the Intergovernmental Panel on Climate)

It is worth noting that the deterioration of the climatic situation has led to the intensification of efforts by environmental scientists to search for a way to save the earth from the damages of climate change and global warming that threatens all forms of life on the earth's surface. On this basis, many agreements and protocols were concluded on limiting the increase in pollution. Environmental Climate change emerged on the political agenda in the mid-1980s, when the United Nations Development Program and the World Meteorological Organization (WMO) initiated the establishment of the Intergovernmental Panel on Climate (IPCC) in 1988 (Global partnership and participation).

The role of this body is to provide the best available scientific, technical, economic and social information worldwide on climate change, to provide law makers with proven scientific information. In 1990, this body published its first report, which indicated that the growing accumulation of greenhouse gases (GHG) is the primary cause of a further increase in surface temperatures by the twenty-first century. The report stressed that climate change poses a real threat and requires an international agreement to address the problem. The United Nations General Assembly responded by officially declaring negotiations on an agreement on climate change and establishing the Intergovernmental Negotiating Committee to develop the agreement (Spencer Wort, 2004, p. 182).

The two countries agreed on the United Nations Framework Convention on Climate Change on May 9, 1992, ratified by 191 countries, and it entered into force on March 21, 1994. Despite that, the parties realized that the agreement would not be sufficient to address climate change, so a new round of talks began to discuss the development of more detailed commitments at the first Conference of the Parties held in Berlin - Germany in 1995.

After two and a half years of intense negotiations, a major extension of the agreement was adopted in Kyoto - Japan in 1997 and ratified by 174 countries. The protocol sets legally binding emissions targets for industrialized countries and creates innovative mechanisms to help these countries achieve their goals. This protocol entered into force on November 18, 2004. The protocol aimed to reduce greenhouse gas emissions to the level of 1990 by the year 2000, but the United States of America saw that this might hinder its economic growth in the coming years.

As for Japan and the European Union countries, they pledged to reduce gas emissions by the rates mentioned in the protocol. The protocol emphasized that industrialized countries are primarily responsible for past and current emissions of greenhouse gases, and they must take the initiative in combating climate change, and developing countries should develop their economic and social infrastructure because their emissions will double when they turn into industrialized countries. The protocol warned that small island states and arid countries are the most affected by climate change (Sulafa Tariq Abdul Karim Al-Shaalan, 2010, 140-147).

Third requirement: specific commitments under the Framework Convention on Climate Change

- Stabilizing the concentrations of greenhouse gases in the atmosphere at a level that would prevent damage to the climate system (Article 2 of the Convention).
- Reporting emissions: all state parties must periodically prepare a report called National communications, and these communications must contain information on greenhouse gas emissions in the world that State and describe the steps it has taken and intends to take to implement the Convention (Article 3 of the Convention).

- National programs: The agreement requires all parties to implement national programs and measures to control greenhouse gas emissions and adapt to climate impacts. Parties also agreed to encourage the development by Parties also of climate-friendly technologies, as well as education and public awareness in this regard, and the sustainable management of technologies for forests and other ecosystems that would contribute to the removal of greenhouse gases from the atmosphere and to cooperate with other Parties in these matters.
- The obligations of the industrialized countries: Additional obligations lie on the shoulders of the industrialized countries. With a view to bringing their emissions back to the level they were in 1990 by the year 2000, they must submit more frequent national communications, and submit annual reports on their national emissions of greenhouse gases (paragraphs a and b of Article 5, paragraph 3 of Article 4 of the Convention).
- Technology exchange: Developed countries must encourage and facilitate the transfer of climate-friendly technology to countries with economies in transition, and they must also provide financial support to developing countries to help developing countries implement their commitments (Article 4, paragraphs 4 and 5 of the Convention)

Fourth requirement: obligations under the Kyoto Protocol

- Stabilization of Greenhouse Gas Levels: The Kyoto Protocol shares with the United Nations Convention on Climate Change their ultimate goal of stabilizing greenhouse gases in the atmosphere at a level that would prevent dangerous interference with the climate system (Article 3, paragraph 7 of the Protocol).
- Existence of binding targets for developed countries: Only Annex II Parties have undertaken a commitment to achieve new targets for the Protocol regimes. And it agreed to its binding targets on emissions during the time period from 2008 to 2012 (Article 11 of the Protocol)
- New tools to reduce emissions: To help industrialized countries achieve their goals and promote sustainable development in developing countries, the Kyoto Protocol has adopted three innovative mechanisms: the Clean Development Mechanism (Article 12 of the Protocol), Joint Implementation (Article 2, paragraph b), and emissions trading (paragraph A of the Protocol). Article 6).
- Monitoring compliance: In support of the implementation of these mechanisms and to encourage compliance by Annex I Parties with emissions targets, the Kyoto Protocol has strengthened the reporting and review procedures for the Convention, creating. He established a system of electronic databases called national records to monitor transactions under the Kyoto Mechanism. Also, a Compliance Committee has the authority to determine and apply the consequences of non-compliance (Article 8, paragraph 1)

Despite the great importance of the Kyoto Protocol, which aimed to protect the ozone layer by reducing greenhouse gas emissions and limiting the levels of emitted gases, it was refused to sign by Each of India, China and the United States of America because of the flexibility in the commitments that were allowed in favor of developing countries, but in fact that even the signatory countries did not comply adequately with what was stated in it, as the commitment period stipulated in the protocol was from 2008 until 2012 and then this period was extended Until 2017, international efforts continued to work in an attempt to reach an agreement binding on the parties, and this intention was announced in the Copenhagen Declaration and the Doha Conference.

The second topic: the concept of the Paris Agreement on climate change

The parties to the United Nations Framework Convention on Climate Change went to Paris in 2015, in order to resume new international negotiations on how to deal with the challenges facing the climate after 2020, in terms of mitigating greenhouse gas emissions (mitigation) and adapting to climate change. Climate (adaptation), loss and damage from climate change, technology transfer and financing of all necessary measures (climate finance). These negotiations, which concluded in December in the French capital, led to the adoption of the Paris Agreement to set new climate policy goals and other processes to ensure broad participation from all the parties.

It is worth noting that the new system adopted in Paris to determine the post-2020 policy was not only looking at the effectiveness of mitigation efforts, but also looking at the possibility of forming a comprehensive sustainable management to reduce the dangerous climate impacts and trying to raise confidence between developing and industrialized countries and support the economically weak parties through financing Climate and capacity-building on the basis of reliable information and sources, while at the same time creating a new, resilient climate system for all parties trying to reconcile their interests with the requirements of future climate change.

Indeed, important elements of a new system were established after Copenhagen, which included the Green Climate Fund, the Cancun Framework (Global Cooperation Framework) and a voluntary approach based on national climate policies.

Climate change is closely linked to national and international decisions and systems, such as the pursuit of sustainable development. Economic policies, consumption, trade and investment decisions affect the climate significantly, such as the standards of pricing systems for energy consumption, sources of emissions and land use, so all government systems and non-governmental organizations must cooperate in order to mitigate the harmful effects of climate change and remove greenhouse gases from the atmosphere by expanding banks greenhouse gases (for example, forests) or through technical interventions in climatic processes (The Royal Society, 2009).

The first requirement: the most important issues contained in the Paris Agreement

Mitigating greenhouse gas emissions:

At the 2010 Cancun Conference, the parties formally recognized that more than two degrees Celsius must be reduced above pre-industrial levels, and they recognized the need to consider promoting a long-term global goal based on the best available scientific knowledge, provided that the average rate of temperature rise should not be More than 1.5 degrees Celsius. The parties agreed to a periodic review of the long-term goal, and the period of the first review was set from 2013 to 2015 (Decision 1/CP.16, paragraph 4).

In 2013, the subject matter experts delivered their final report based on the Fifth Assessment Report of the Intergovernmental Panel on the Environment that reducing 2°C is not a safe level of global warming and Parties and more efforts and more support must be done and provide more support to Small Island States and other vulnerable least developed countries most affected by change Climate (climate vulnerable forum, 2015).

Accordingly, the Paris Agreement emphasized and focused on mitigation work in Article 4, where it focused on the need to work to achieve a global halt in greenhouse gas emissions as soon as possible in accordance with the best available scientific knowledge in order to achieve a balance between anthropogenic emissions and removals by sinks in The second half of the current century acknowledges that developing countries will require longer emissions mitigation.

In the negotiations that led to the Paris Agreement, the parties discussed the best ways to activate the long-term goal through a qualitative goal to reduce emissions, that is, to reduce the percentage of carbon dioxide intensity for the base year adopted by the countries, and thus we have achieved a reduction rate much higher than just a quantitative carbon reduction (Geneva Negotiation Text, FCCC/ADP/2015/1 paragraph. 17).

Parties differed on the percentage of specific carbon reduction, with some calling for a 40% to 70% reduction by 2050 compared to 2010 levels (ADP 2-11 party inputs), and the group of island states and least developed countries called for a proposal to reduce 95-70% by 2050 Compared to 2010 to be able to reduce 1.5°C (AOSIS and LDC, 2015), while the European Union supported a 50% reduction by 2050 compared to 1990 levels with emissions close to zero by 2100 as well as a 95-80 reduction % on the part of the developed countries (EU position for the UN Climate Change Conference, 2015), while some parties opposed the idea of setting certain percentages, and thus we can say that it is not possible to reach a single agreement on determining the percentage to be reduced because some goals are not ambitious enough (Geneva Negotiation Text).

Despite this difference between the parties, a zero-emissions timetable has been agreed upon, and despite the devious approach used by paragraph 1 of Article

4, it conveys a clear message that emissions must peak as quickly as possible and rapid cuts are made to reach to the goal of zero carbon in the second half of this century. Paragraph 2 of Article 4 is a legally binding provision regarding notification of national contributions and an undertaking to achieve them by seeking local mitigation measures. Paragraph 3 of Article 4 also emphasized the necessity of working to adhere to national contributions in the field of mitigation operations in order to reach the highest possible ambition, each according to its capabilities and different national circumstances. As for paragraph 4 of Article 4, it states that developed countries should continue to take the lead by setting absolute targets for economy-wide emissions reductions, while developing countries should continue their mitigation efforts. Based on this, achieving justice between states according to this text is by achieving positive discrimination by distributing responsibilities according to the capabilities and special circumstances of each state. But the most important question remains, which is, how do we reach the goal of reducing 1.5 degrees Celsius? To answer it, it must be known that the temperature rise is closely proportional to the carbon dioxide emissions accumulated in the atmosphere, and accordingly stopping the rise in temperatures requires a certain level close to net zero carbon emissions, and we can achieve this process by stopping greenhouse gas emissions when reaching Maximizing the cumulative carbon percentage in the atmosphere and starting the process of discharging carbon from the atmosphere through sewers represented by forests, for example (M. Collins et al, 2013).

Adaptation to face the negative effects of climate change:

Paragraphs 3, 10, 7, 13 of Article 7 are among the most prominent texts in which the distinction between developing and developed countries is clear, as it was keen to provide assistance in adaptation efforts to developing countries and not to pressure them with additional efforts above the level of their national capabilities, but it did not specify exactly who They are the countries that need assistance, so they left the matter open according to the circumstances and emergency developments of each country. As for paragraph 4, it stressed the common benefits between mitigation and adaptation and the importance of adaptation in the face of climate change, which contributes to forcing countries to implement adaptation measures on the ground. And not only to present proposals on paper, but according to the principle of common but differentiated responsibilities in light of different national circumstances.

Adaptation measures are also mentioned in paragraphs 46-41 of the decisions to be enforced to implement the agreement, but the language of the decisions does not carry the same binding language as the text of the article in the agreement, so it is likely that it will need more negotiations in the future.

Financing:

It should be noted here that the COP 2010 Cancun agreement is the primary reference for the Agreement on the Recognition of Climate Finance (Decision 1/CP.16, the Cancun agreements, article 4, paragraph 3).

Since financial support is the most prominent point in clarifying the distinction between developed and developing countries in the Paris Agreement (Paris Agreement article 9.1), Article 3 recognizes the need to support developing countries for the effective implementation of the Convention. Also, the support must be unconditional in order to reach the highest level of ambition (Paris Agreement Article 4.5, 7.13). This is without exempting countries in need of assistance from their obligations under the Convention. As for Article 9, it is clearer in the distinction between countries, as it stipulates the necessity of providing financial assistance to developing countries in the procedures of their obligations in the agreement (Paris Agreement Article 9.1 and 9.3).

Paragraph 5 of the adoption of the Paris Agreement outlined the climate finance policy, which it is hoped the process of increasing will continue, as it set a new collective goal, after it was decided at the Cancun Conference that the mobilization of 100 billion US dollars would continue until 2020, it was decided in an agreement Paris Climate that the mobilization process continues until 2025 and that the amount of 100 billion US dollars is the minimum amount of funds, and urges developed parties to continue climate finance to enhance transparency in the measures taken by developing countries.

Thus, we find that the Paris Agreement does not contain a specific mechanism for distributing the financial burden on the advanced parties, but rather left the matter open for each country to contribute what it can offer according to its capabilities and national conditions. As for paragraph 2 of Article 9, it touched upon a new matter that was not dealt with in an agreement before, which is that non-developed countries can provide financial assistance voluntarily, as this paragraph is a fundamental change in the perspective of the difference between developing and developed countries. As a developing country, it does not provide any material support or assistance of any kind to other countries because, from the point of view of international law, they have the right to help themselves. As for this agreement, it looks at a far future view. Countries that are developing today and need help can advance and be able to provide assistance to others. Therefore, this text imposed that the aid is voluntary on developing countries, unlike developed countries, as financial aid is imposed under the agreement.

In order for the states parties to reach the agreement's main goal, which is to reduce 2 degrees Celsius of Earth's temperature and to overcome global warming, they must undertake work to reduce emissions and adapt to climate change. All of this requires a very high financial budget that the developing and poor countries cannot provide. For this reason, the Green Fund is the main driver of the remaining obligations imposed by the agreement on all its parties (CF. COP Decision, para. 52, Paris agreement).

Transparency:

The principle of transparency has been incorporated into Article 13 which makes different parties' capacities to discriminate through different types of obligations and commitments under the Convention, and both Articles 9 and 13 stipulate that developed countries have mandatory reporting obligations in

relation to the provision of support. The other parties must report that only. Although this part gives flexibility to developing countries, it is interesting, because while recognizing preferential treatment in favor of developing countries, it reduces the precise classification between the parties as it was in previous agreements, after the parties that are classified as developing do not bear any of the responsibility. It now has flexibility in its obligations and at the same time bears some responsibilities in light of its different national capabilities (Decision 1/Cp.21, Para 90). There are several types of reports that have been adopted in the Paris Climate Agreement - national communications, biennial reports, and biennial updates.

Losses and damages:

The Framework Convention on Climate Change did not settle on a specific working definition of the losses and damages that result from the negative effects of climate change. Only some terms were mentioned without defining them such as ocean acidification, desertification and sea level rise, in addition to non-economic losses such as loss of cultural heritage and displacement. All these losses, poor or low-income countries are more vulnerable to than rich countries because of their inability to repair the damage and overcome the damage through scientific and technical capabilities due to the lack of sufficient funding, which means that the damage is insufficient or failure of the process of adaptation to negative climate impacts due to lack of Availability of adequate funding and technology (Michael B. Gerrard and Gregory Wannier, 2013, p 3).

Therefore, the coalition of small countries called for the recognition of moral and legal obligations in paying harm, helping countries to survive and protecting them from risks and disasters, especially since developed countries with rich economies are primarily responsible for climate change. Therefore, the mechanism of losses and damages must be activated based on the principle of polluter motive (Alliance Of Small Islands, 2008, p 01).

The discussions of the Parties to the Framework Convention on loss and damage continued until 2013 when the Warsaw Loss and Damage Mechanism was adopted to mitigate the adverse effects of climate change. It seeks to address potential gaps in the climate system environment, addresses current mitigation and adaptation issues, and focuses on enhancing understanding of risks and response capabilities such as insurance. of potential disaster risks. Moreover, it included a five-year action plan (IPCC, 2007, p 736).

Therefore, the Executive Committee of the Paris Agreement took the necessary steps to activate the action plan of the Warsaw Mechanism, with a focus on establishing contacts with other entities, whether from within or outside the Framework Convention, and also stressed the need to raise the level of awareness for countries and establish an information center, but the work of the Committee was limited due to the lack of financial resources. And humanity, which is something the Committee has requested the Convention to address (UNFCCC/SB/2015/3).

The Paris Agreement responded to these demands and incorporated the Warsaw Loss and Damage Mechanism into its legal structure as an independent pillar and assigned Article 8 to it, and sought to strengthen its role beyond 2016 and continue to develop in the coming years. It emphasized the adoption of the approach adopted in the WIM workplan, excluding any impact of the proposals on legal liability and financial obligations (Paris agreement article 8.4.), and the agreement identified several areas of cooperation, including early warning systems, risk management strategies, insurance facilities and economic losses, and a two-year work plan. International Warsaw Mechanism. As for paragraph 5 of Article 8, its language was clear with regard to emphasizing that the Warsaw Mechanism should cooperate with existing bodies both inside and outside the Convention.

The second requirement: the legal nature of the commitment in the Paris Agreement Knowing the nature of the commitment is of great importance in knowing the impact of this agreement on the countries of the world and the extent of its impact on climate change. Therefore, the issue of the mandatory Paris Agreement was raised for the first time in the Bali Action Plan 2007, and many questions were raised about what nature is. The legal mechanism that obliges states to mitigate environmental damage, and then discussed in The Copenhagen Negotiations 2009 AD, Cancun 2010 AD, and this issue was repeated in the 2011 Durban negotiations, which began thinking about setting up a mechanism with an agreed outcome that would have binding legal force (UNFCCC/CP/2011/Add. 1, Para. 2).

It is worth noting that environmental workers have concluded that the legal form or the legal nature in order to be binding must consist of several interconnected points, so if we want to know the legal nature of the Paris Convention, we must distinguish several aspects represented in the following (Daniel Bodansky And Lavanya Rajamani, 2015 , p 01):

- Knowing how binding the treaty results are, and whether it is a legally binding instrument that elevates it to be a treaty international?
- Are actions and objectives related to mitigation actions, for example, a legally binding text?
- What is the nature of the obligation contained in the agreement? Is it a commitment to achieve a result or a commitment to conduct?
- Are there provisions and mechanisms to ensure effective implementation is promoted?
-

As for the results of the agreement, we find that all of them are binding on all the state parties. The agreement used the principle of common but differentiated responsibilities according to the different national circumstances of each state in order to be able to obtain unanimous approval of the results.

As for the procedures approved by the agreement, whether related to mitigation, adaptation or financing, the agreement also made them binding, but the force of binding varies from one country to another according to the capabilities of each, but in all cases, all countries are obligated even if some of them have flexibility, as for the use of mechanisms We find that the Paris Agreement has used a

number of them to ensure mandatory implementation, such as the Warsaw Loss and Damage Mechanism. It is noted that this agreement has dealt with the two types of commitment, and evidence for this is in the following examples:

- ✓ Commitment to achieving a specific outcome, such as the goal of reducing emissions, taking specific measures, policies and other relevant goals related to the use of renewable energy, improving energy efficiency, financial contributions, and establishing national arrangements for estimating greenhouse gas emissions.
- ✓ Commitment to conduct at the international level such as pledges, contributions and reports and participation in international processes such as preparing and reviewing reports, consultation and evaluation.
- ✓ Commitment to behavior at the local level, such as taking legislative and regulatory measures to address emissions, mitigation and adaptation measures, and estimating and eliminating emissions in accordance with internationally agreed methodologies.

These categories illustrate the nature of commitment in theory. But in spite of this, the views can differ about it. What can be an obligation to achieve an outcome is considered by some to be an obligation to conduct such as national estimates of emissions and removals, but in fact a single commitment can have both cases in the sense that it is an obligation to achieve a result and behavior at the same time, such as National contributions to achieving the emission reduction goal (General Assembly, 1997, At.11 P. 77).

Another jurisprudential problem arose regarding the possibility of combining local and international obligations or between international and international obligations. The answer was that a local obligation can be combined with an international obligation, provided that the local obligation does not conflict with the international. Like the transparency obligations contained in the agreement, international conduct is to provide information and domestic conduct is to collect this information. But it is not possible to combine two international commitments on one topic or matter, for example, countries cannot submit emissions reports only, the methodology of the Framework Convention on Climate Change and the methodology of the Kyoto Protocol at the same time (Jutta Brunnee, Meinhard Doelle And Lavanya Rajamani, 2012, p. 122-146).

Starting from the above, we find that the Paris Agreement has fulfilled all the conditions to rise and become a binding international treaty that provides binding legal rules for all countries as soon as it enters into force.

The third topic: the mechanisms for implementing the Paris Agreement on Climate Change for the year 2015

The first requirement: the mechanisms established by the Paris Climate Agreement

Down-up approach

The bottom-up mechanism means that the agreement (the party with higher legal status) introduces certain obligations and policies to which the parties are bound, and the lower party (the lower party in legal status) implements them in

order to achieve the main objective of the agreement. Although the framework agreement won wide international acceptance and participation by more than 150 parties, and it entered into force in 1994, and gained almost universal membership, and everyone agreed to achieve its main objective, which is to stabilize greenhouse gas concentrations. The treaty also defined goals, principles and general obligations for the parties, There was global optimism about it, as all parties expected that it would be able to achieve its ambitious goal and address the problem of climate change, but the result was on the contrary, the agreement was unable to achieve its goal because it was relatively lacking in implementation strategies and accurate solutions, and it left many decisions Important and details without a radical solution.

That is why the Kyoto Protocol was adopted in 1997, which is the first comprehensive agreement to reduce greenhouse gas emissions under the Framework Convention. Despite international support for the protocol, it quickly proved to be a failure, and one of the major failure factors of the protocol is the failure to promote the participation of all parties in emission reduction processes (Jacquelynn Kittel, 2014, P.1207).

The protocol required emissions reductions from 33 countries only during the first commitment period 2005-2012, in addition to the second commitment period 2012-2020. This is what called the largest global emissions causes to refuse to ratify and abide by it, namely the United States, China, India, Brazil, South Africa and other countries On the other hand, it can be said that the main reason behind the failure of the Kyoto Protocol is the failure to provide a comprehensive solution to the issue of global warming.

At COP 19 held in Durban in 2011, parties recognized the failure of the top-down approach and decided to establish the Ad Hoc Working Group on the Durban Platform to be responsible for creating a legally binding mechanism for all countries by 2015 to replace the Kyoto Protocol. The ADP has therefore devised a new way of ensuring the participation of all parties. The completely opposite approach, a bottom-up approach, has been adopted. That is, the lower party, the states party to the agreement, presents plans and contributions that it intends to achieve in order to achieve the goal of the higher party (the agreement), in order to achieve the highest percentage of flexibility and provide the opportunity for all parties to participate in achieving the goal and follow up on strategies and solutions that contribute to achieving the interests of all ((A synthesis report on the aggregate effect of intended nationally determined contributions, which is a feature that allows parties to formulate adaptation and mitigation strategies according to the specific circumstances and capabilities of each country.

Moreover, there is a reason that the bottom-up approach is a better alternative to the top-down approach at the present time is that national contributions offer great flexibility when it comes to setting emission reduction targets and implementing policies to achieve that goal (further advancing the Durban platform, Dec. 1/CP. 19), as this flexibility allows parties to prioritize their efforts based on their own economic, political, and geographic considerations.

This ensures that all parties begin the transition to a low-carbon economy in an efficient and predictable manner.

In summary, we conclude that the approach is the first bottom-up mechanism that represents a new solution to the issue of climate change that can create a qualitative leap in the international law system for environmental protection, and this approach has received unprecedented international support from more than 147 parties by submitting their national contributions before the first of the October 2015.

Contributions to be achieved nationally:

Countries have adopted the principle of determination to achieve the INDCs, which is about taking national policies in order to contribute to achieving climate balance by achieving zero carbon for each country according to its national circumstances and capabilities. This principle was first agreed upon at the Nineteenth Meeting of the Parties in 2013 in Warsaw, where the final text called on all governments that intend to do so to submit their contributions before the end of the first quarter of 2015, i.e. before March 31, and this was confirmed in Lima 2014.

According to the 2014 Global Carbon Project report, greenhouse gas concentrations increased by 800,000 tons over 2013 as a result of human activity such as burning fossil fuels and unsustainable land use. Global warming emissions have increased dramatically since the pre-industrial era. In recent decades, anthropogenic greenhouse gas emissions have contributed to rising atmospheric temperatures, altering the global water cycle, lowering snowfall, and rising sea levels (Report of the Intergovernmental Panel on the Environment for the year 2013).

It should be noted that in the period 2014-2015, the United Nations Development Program (UNDP) and the United Nations Framework Convention on Climate Change (UNFCCC) held a series of dialogues related to the technical aspect of national contributions to support countries in the process of preparing their contributions. The countries that participated in those dialogues requested additional detailed guidance on how to prepare national contributions. These demands were responded to. The report directed the parties to prepare and design national contributions in five general steps, namely, identifying benefits from INDCs, organizing the process of INDCs, identifying and analyzing data, reporting on INDCs, and finally INDCs, and then interstate communication regarding these contributions (Kelly Levin and David Rich, 2015).

In the run-up to the Paris negotiations, the international multilateral community decided that all countries should send in their INDCs, each country's contribution to collective action against climate change, and so it is part of a new vision for a global climate agreement that includes:

- The national approach to climate change policy related to all national capacities to deal with climate change and the incentives they provide for international cooperation.

- The requests for national contributions are relatively diverse depending on national circumstances and the vision of international cooperation for a comprehensive response to climate change, as it included a system of flexible common rules, the goal of which is to reduce 2 degrees Celsius
- Mitigation as the core of this collective goal with adaptation, financing and technology transfer
- Introducing a stable global agreement that can gradually create international incentives for countries to deliver more ambitious actions over time.

National contributions are not only a documentation of a national ambition, but represent each country's vision of how to transform its economy and society towards a low carbon and more resilient system. Moreover, the National Contributions demonstrate how each country understands the challenge of global efforts to address climate change, so it is important not only that we look at the content of national contributions but must also monitor their implications. The ADP considers that national contributions give each party the opportunity to set emissions reduction targets independently of the rest of the countries, and it is a discretionary process in the interest of each party. It accurately reflects how seriously each country is in tackling climate change, because they are commitments that countries make and adhere to on their own. The ADP is therefore hopeful that these contributions will be a real starting point for achieving the global goal of lowering temperatures.

Contributions to be achieved internationally (European Union as a model):

The European Union is one of the best parties to the Framework Convention in the field of environmental protection and one of the first adherents to previous agreements. It was always the first to call for international conferences to discuss climate problems and try to find solutions to them and to commit to these solutions even if their formula was not binding, it was and still is welcome any agreement or commitments that help to overcome environmental problems in general and the problem of climate change in particular.

That is why the European Union decided to reduce emissions by at least 40% by 2030 compared to 1990 levels, starting in 2021, and to address all sectors not subject to the Montreal Protocol (to protect the ozone layer). The heads of the European Union concluded in October 2014 that the national contributions would be indefinite and transparent with the aim of mitigating as much as possible and indicated that it would work to reduce domestic emissions with national plans and mechanisms and would not use international funds.

One thing that shows how transparent the EU national contributions are is that LULUCF - Land Use, Land - Use Change and Forestry is not included in the domestic reduction target meaning that there will be a greater proportion of mitigation by 2020 when entering The Paris Agreement enters into force.

The European Union intends to submit legal proposals in 2015 and 2016 to implement the 2030 climate framework, which will need to be updated and supplemented with additional elements, especially in the field of innovation and infrastructure deployment to reach the 2030 goal. Accordingly, the European Union can provide additional information in the field of energy Renewables, energy efficiency and mitigation through emissions trading this shows us the extent to which the European Union adheres to the Kyoto Protocol, as it has long called for the Protocol to have a binding form.

In addition, European leaders agreed in 2009 that emissions must be reduced from 95-80% by 2050 as a contribution from the European Union to achieve the 2°C reduction target.

The European Union has emphasized transparency in particular as an important element for the implementation of the international climate agreement, as it contributes to establishing confidence between the parties and eliminating the ideas ingrained in the mind of the international community that climate policy is a zero-sum game, and also contributes to facilitating the process of implementing national contributions due to the parties' knowledge target and define their own policy on data collection and national contributions. With this, the European Union has taken a more comprehensive approach to transparency.

However, he believes that the national contributions and related issues that were negotiated in the Paris Agreement may need additional efforts to achieve the desired goal of the agreement, in several ways, most notably (European Union Council Conclusion 2014):

- ✓ Adding more details to the national contributions policy that would enhance transparency and credibility between countries and clarify how it intends to reach the goal and the importance of climate change.
- ✓ The Paris Agreement should include a long-term perspective that can serve as a basic reference for understanding the adequacy of national contributions in light of the two-degree target.
- ✓ The EU should carefully answer all questions about national contributions so that countries can understand them in more detail in order to gradually increase ambition.
- ✓ The EU should consider how to regulate domestic policy processes, review the terms of policy initiatives aimed at expanding EU climate policy, try to find a more comprehensive approach to transparency that goes beyond greenhouse gas emissions and try to propose a mechanism for the detailed review of progress in decarbonization at the international level by relying on broader databases and stakeholder engagement under the FCCC Transparency System
- ✓ There is a need to present the EU's policy on issues of adaptation to climate change that includes actual action in addressing climate change, in addition to the objective of improving mitigation and adaptation actions.

✓ The EU must increase pressure on the continued flow of climate finance funds, particularly for increased adaptation.

The second requirement: the role of non-state actors in reviewing ambition, implementation, and compliance under Paris Agreement on Climate Change

Non-state actors are not only civil society organizations but also research institutions and non-national authorities, all playing a range of roles in the making and implementation of international environmental law, where they can set the agenda by participating in negotiations and monitoring processes for treaty implementation (Simon Hillier and Thomas Stuart , 2015).

Environmental NGOs played a major role in putting the problem of climate change on the agenda at the end of the eighties of the last century, and many of them participate in the meetings of the United Nations Framework Convention on Climate Change as observers. On this basis, she can attend some intergovernmental negotiations (2007, p774, Peter J. Spiro).

In addition to these official roles, there are a number of side activities that it undertakes such as exhibitions and protests and other roles such as exposing the users of fossil fuels in violation of the agreement and urging the use of specific language included in the decision of the Conference of the Parties and providing information through documented reports. We therefore find that non-state actors have played a role in monitoring treaty enforcement by helping to clarify whether actions taken by national governments are just and ambitious, thus facilitating the process of promoting compliance (Harold K. Jacobson and Edith Brown Weiss, 2000, p 545).

The Paris Agreement identifies three processes in which non-state actors may be involved, namely the strengthening of the transparency framework (Paris agreement, Article 13.), their role in facilitation and the evaluation process (Paris agreement, Article 14), and the implementation and compliance mechanism (Paris agreement, Article 15).

The role of non-state actors in strengthening the transparency framework

The transparency framework is based on two components:

- Technical review of national reports by a team of experts.
- Multilateral consideration of the report by other parties so that all parties can benefit from these reports, including non-governmental actors.

Non-governmental actors can provide inputs by providing reports or relevant data, for example, on the ground they often participate in gathering the necessary information and give their feedback in an oral or written manner. When extrapolating national contributions, we find that many of them refer to non-state actors, the private sector, civil society and other non-state actors in technical expert reviews and advise Parties in understanding their role in the implementation process of the Convention.

The role of non-state actors in the 2018 Facilitation Dialogue and the 2023

Global Assessment Process Non-state actors can make valuable contributions to the facilitation dialogue and the global assessment process in several ways:

- Provide scientific insights that are at the core of the work of the Intergovernmental Panel on Climate Change and participate in the implementation facilitation procedures to reach the long-term goal.
- The decision to adopt the Paris Agreement did not limit the specific input to the global assessment process, so non-state actors can provide reliable and credible information including international organizations such as the United Nations Environment Program that submit annual reports on greenhouse gas emissions. The evaluation process also involves multilateral discussions to assess the overall level of progress, which allows the observer organizations to provide written and oral opinions. These inputs include information on the impact of NDCs, adaptation measures, and estimation of greenhouse gas emissions, as well as other information on the provision of technology financial support.

Non-State Actors, Implementation Mechanism and Commitment

The Paris Climate Agreement called for a new mechanism that contributes to facilitating the implementation and strengthening of compliance with its provisions, whereby a committee comprising of experts will be established, and it will be of a facilitative, non-accusatory and non-punitive nature, paying attention to the national capacities and circumstances of each party.

Non-state actors can play an important role in this mechanism such as providing information to the implementation facilitation committee or triggering the compliance process through a complaint that requires the committee's attention and the committee can rely on input from non-state actors. Compliance mechanisms can seek assistance from non-state actors in assisting Parties in addressing barriers to implementation, including the provision of technical knowledge, capacity-building and financing.

Proceeding from the above, we conclude that, despite the failure to address the role of non-governmental actors in the official texts of international environmental conferences and agreements, they had an effective role on the ground, which prompted the Paris Agreement to clearly include them in the texts of the agreement; Because the multiplicity of sources in the use of information gives it a reliable force and protects it from questioning its authenticity, and this is what the Paris Climate Agreement used regarding the sources of reports when it decided to adopt the reports of governmental and non-governmental agencies, while guarding against the excessive increase in the number of sources. This is what distinguishes the Paris Agreement from other environmental agreements.

CONCLUSION:

Results:

- ✓ Despite the conclusion of the Paris Agreement and its importance, it must be noted that the agreement came late after many international conferences that did not achieve the required results, which contributed to the rapid exacerbation of environmental problems resulting from climate change.
- ✓ The Paris Agreement is a radical shift in the concepts of international law for the protection of the environment, as it is considered the beginning of a new start in addressing the negative effects of climate change and is not the end of it, as some believe.
- ✓ The agreement explicitly stipulates the role of non-state actors and enhances their role alongside the states parties to it.
- ✓ The agreement was characterized by the introduction of the concept of multilateral division of the parties in the light of joint responsibilities under the different national conditions.
- ✓ The Paris Agreement replaced the traditional mechanism recognized in all international treaties for the protection of the environment with a (top - bottom) mechanism, and a (bottom - top) mechanism, whereby countries commit themselves according to their national capabilities to achieve the main objective of the agreement.
- ✓ Adopting and developing the Green Fund mechanism that was established at the 2010 Cancun Conference, where a minimum amount of \$100 billion annually was set to be mobilized by 2025.
- ✓ Many environmental groups encourage individual action against global warming as well as community and regional actions to reduce it. Some have also suggested setting a fixed share of global production of fossil fuels - the largest direct source of carbon dioxide emissions (Monbiot, George, 2007, p.6
- ✓ There are also commercial actions on climate change, including efforts to improve energy efficiency and some attempts to use alternative fuels. In January 2005, the European Union announced the European Union's emissions trading scheme, whereby companies and governments would agree to limit emissions or buy credit from those who emitters below the permissible limit. Australia also announced in 2008 a plan to reduce carbon pollution. US President Barack Obama announced an economic plan to trade emissions globally.
- ✓ In 2007 the IPCC's report that no specific technology in a particular field could be responsible for mitigating global warming. There are key practices and technologies in areas such as transportation, industry, agriculture and energy supply that should be implemented to reduce global emissions. They

concluded that stabilizing CO₂-equivalents between 445 and 710 ppm by 2030 would result in between a 0.6% increase and a 3% decrease in GDP.

RECOMMENDATIONS:

- Develop national legislation to be compatible with the commitments of the Paris Agreement on Climate Change.
- Issuing national laws in light of the decisions of the Paris Climate Agreement so that both the public and private sectors are committed to them in the work of mitigation and adaptation
- Spreading environmental culture and raising citizens' awareness by countries of the dangers of environmental problems through street advertisements, for example.
- Accurately define the work of non-state actors in implementing the Convention to encourage public participation as well as international participation
- Strengthening certain mechanisms to monitor the functioning of factories to avoid deliberate non-compliance with the emissions rates specified in the nationally intended contributions.
- Encouraging the private sector to financially assist the state in adaptation and mitigation work and the provision of technology possible by minimizing taxes and facilitating their investment transactions.
- The use of geoengineering will ensure the balanced development of the natural environment on a large scale to suit human needs (WILLIAM J. BROAD, 2006, p 2) Greenhouse gas treatment - as an application of climate engineering - examines the removal of these gases from the atmosphere by sequestering carbon dioxide (Nicholls, R, 2004, p 3)
- The effects of global warming are wide-ranging, and therefore there are many suggestions for measures to adapt to global warming in all areas. This starts from a range of simple solutions, such as using an air conditioner, to large solutions, such as the migration of areas threatened by sea level rise.
- In the agricultural sector, adaptation includes selecting crops suitable for new climatic conditions. For example, farmers in Orissa, India, grow flood-tolerant chamberswar rice. In Africa, it has been discovered that as rainfall increases or decreases, farmers switch between water-intensive crops and drought-tolerant crops (World Bank, 2008, p. 7).
- Suggested measures also include dam construction (Nicholls, R, 2004, p3), health care changes (Vanlieshout, M, R.S. Kovats, M.T.J. Livermore and P. Martens, 2004, p3), and interventions to protect endangered species.

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