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GLOBAL CLIMATE CHANGE IN LIGHT OF INTERNATIONAL CONFERENCES OF PARTIES (C. O. P) AND ITS IMPACT ON THE CLIMATE OF IRAQ

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ABSTRACT

Climate changes and the effects that accompanied them and accompany them have become the main concern of the countries of the world in recent years, after they became an indisputable scientific fact, and a tangible reality that the countries of the world suffer from. First, they are not defined by geographical or political borders, and they are no less dangerous than wars and armed conflicts, but they are more influential second, as there is no country immune to the consequences of climate change, and developing countries, including our dear Iraq, remain at the forefront of the countries most affected by the effects of climate change, as the list of the governmental body concerned with climate change confirms.

KEYWORDS

Climate change, Global Climate, human activity.

INTRODUCTION

Climate changes and the effects that accompanied them and accompany them have become the main concern of the countries of the world in recent years,

after they became an indisputable scientific fact, and a tangible reality that the countries of the world suffer from. First, they are not defined by geographical or



political borders, and they are no less dangerous than wars and armed conflicts, but they are more influential second, as there is no country immune to the consequences of climate change, and developing countries, including our dear Iraq, remain at the forefront of the countries most affected by the effects of climate change, as the list of the governmental body concerned with climate change confirms.

(Climate change is not a concern for just one or two countries, it is an issue that affects all of humanity and every living being on this earth. This beautiful place is our only home, we must take serious action now to protect our home and find constructive solutions to the problem of climate change).

Although climate change is the result of the interaction of natural and human factors, various human activities, most notably industrial ones, are the most significant cause of global climate change. Since the nineteenth century, human activities have become the main cause of climate change. According to a report issued by the Intergovernmental Panel on Climate Change (IPCC), more than 95% of emissions over the past fifty years have contributed to raising the Earth's temperature.

The factors causing climate change as a result of human activity (U.N.F.C.C.C.) have contributed to the exacerbation of this problem, with the increase in the gases causing its pollution in the atmosphere, and the accompanying rise in temperatures and the decrease in

the amount of rainfall, and the problems that accompany them, reflecting their effects on the elements and components of the environment, most notably man and his various activities, such that all countries of the world have been affected, including our beloved country, as the reports of the World Organization concerned with climate change confirm that Iraq ranks fifth among the countries in the world most affected by the impact of climate change.

Therefore, we chose this problem because it is one of the most important contemporary climate problems with a multifaceted impact on the elements and components of the environment in Iraq, in addition to the fact that it has received priority attention from international organizations and bodies, most notably the United Nations General Assembly and its organizations (the Intergovernmental Panel on Climate Change), which prompted it to hold seminars and conferences to highlight the impact of this problem and the measures that can be adopted to limit its effects now and in the future.

Reports issued by the Intergovernmental Panel on Climate Change (IPCC) indicate in one of its reports issued in 2006 that (the surface temperature has risen (0.6°C) since the middle of the nineteenth century), and the second report of the United Nations (IPCC) issued in 2017 indicated that (the linear trend of the global surface temperature has risen to (0.74°C) for the period (1906-2016).



According to what has been proven by scientific studies of the climate globally, reports issued by the Intergovernmental Panel on Climate Change affiliated with the United Nations on (27/1/2005) under the title (Climate Change Rings the Alarm Bell) proved that the temperature of the Earth will rise by a rate of (11°C), and it was confirmed in the research published by the respected scientific journal (Nature) that (the lowest increase will be around (two degrees Celsius) and the highest (11 degrees Celsius), if the world continues to depend on primary energy sources. The Intergovernmental Panel on Climate Change confirmed

(Climate change is an unequivocal reality that cannot be doubted scientifically), and she warned of the consequences of its effects on the environment and humans in particular if we do not take the necessary measures to avert the dangers that accompany it. Before beginning to explain the effects that concept of climate change, focusing on its human causes first and its effects on a number of environmental aspects in Iraq second

The first topic: The concept of global climate change:

Introduction: Geographers, like other specialists, especially climatologists, contribute to addressing such topics that are at the core of their specialization; because their scientific studies have reached a scientific fact that confirms that all elements of the

environment (exist, grow, develop, disappear under the umbrella of climate), and it has been scientifically proven, which supports their studies, that the problem of climate change (is a scientific fact that does not accept doubt or ambiguity), especially since human activities in a number of countries in the world are at the forefront of what caused the climate changes that the world is witnessing, and that what we are witnessing of an increase in the use of fossil fuel sources and other sources of unclean energy is one of the factors that contribute to the exacerbation of this problem, and that this will contribute to changing the climatic characteristics and thus its effects will be reflected in the elements and components of the environment. Before starting to explain the effects that accompany climate change, we are required to clarify the concept of climate change, and how it differs from synonymous terms and remove the ambiguity that non-specialists fall into in defining this problem.

First: The concept of climate change in terminology:

The Intergovernmental Panel on Climate Change (IPCC) refers to climate change as:

(A change that occurs in the climate over time, whether as a result of the influence of natural factors or as a result of the influence of human factors), and it has defined another concept of climate change that also falls in this direction, which is that climate change



is (statistically significant changes that extend over a long period of time, usually decades or more, and include changes in climate elements and accompanying weather phenomena, in addition to the slow, continuous rise in the global average surface temperature).

The United Nations Framework Convention on Climate Change (UNFCCC) stated in its first article that: (Climate change is attributed directly or indirectly to human activity that alters the composition of the world's atmosphere, as well as to natural climate fluctuations, observed over similar periods of time), and defined it as: (A change in climate attributed directly or indirectly to human activity that leads to a change in the composition of the Earth's atmosphere).()

The Intergovernmental Panel on Climate Change (IPCC) has defined climate change as: "A change in the state of the climate that can be identified by changes in the rate or variables in its characteristics that last for a long period, usually decades or more, and refers to any change in climate over time, whether as a result of natural changes or resulting from human activity."()

Climate change is defined as (the imbalance prevailing in climatic conditions such as temperature, wind patterns, and rainfall distributions characteristic of the region, which is reflected in the long term on existing biological systems).()

According to the Intergovernmental Panel on Climate Change report, global warming is clear and indisputable, and global temperatures are increasing steadily and at a pace that is difficult to contain within the threshold of (1.5 degrees Celsius), and evidence indicates that carbon dioxide is the main driver of climate change

Scientific evidence linking anthropogenic greenhouse gas emissions to climate change has begun to raise concerns around the world. A series of conferences were held in the 1980s and 1990s. The pace of these changes has increased since the beginning of the 1990s, and scientists have begun to worry that the escalation of this phenomenon in this rapid manner will make it difficult to mitigate it, stop its effects, or limit it. Although this phenomenon is natural, its causes are primarily due to the policies of industrialized countries based on material profit, which use fossil fuels in their economic activities in large quantities, which causes significant pollution of the atmosphere, which increases the possibility of global warming occurring. Acceleratingly, these countries did not adhere to the international conditions and standards aimed at reducing this phenomenon and its destructive effects, in addition to the lack of commitment, concern and seriousness of these countries in addressing the effects of this phenomenon on developing countries.

Climate change emissions from industrialized countries are more significant than those from developing



countries. The 100 countries that produce the least amount of emissions account for only 3% of total emissions, while the 10 countries that produce the most emissions generate 68%: China (28%), the United States (11%), India (6.6%), and the European Union (6.4%). Accordingly, China and the United States produce about half of the world's carbon emissions into the atmosphere, and this is why everyone must take action on climate.

Second: The reality of climate change now and in the future:

According to climate models, the temperature will increase by 1.5 degrees Celsius and between 1.5-2 degrees Celsius, and among these expectations, we can mention the increase in the effects of global climate change.

(1) The world expects higher average temperatures in most regions and terrestrial environments, an increase in the frequency of extreme heat waves, a decrease in precipitation in a number of regions, and an increase in the frequency and extent of droughts as a result of the decrease in precipitation.

(2) Expectations show that the number of regional climate changes is consistent with an increase in global warming of (1.5°C) compared to pre-industrial levels

(3) Scientists expect that the increase in extreme temperatures in the wild areas will be more than the

global average for surface temperatures, and the increase in the temperatures in the middle latitudes in the number of days will increase to more than degrees Celsius above the averages.

(4) Scientists also expect the number of hot days to increase in most arid and semi-arid regions.

(5) It is expected that the risks caused by drought and inability to rain will be higher under global warming (2°C) than under global warming (1.5°C) in the number of regions.

(6) and the prediction of the relationship between heavy rains and tropical cyclones under the global warming of 1.5 degrees Celsius, and it is expected that the heavy rains will increase at the global level under the global warming of 2 degrees Celsius) Magnitude global warming (1.5 °C).

(7) And the impact of climate change on the sustainable development of large countries, in addition to the lack of powers to achieve the development goals, and the strategy for the period between 2020-2050, and the Human Development Report 2018-2019 warns that the achievement of the number of development goals, especially the reduction of poverty, is threatened by the Khums factors of change. The climate is human-caused namely: (1) the decrease in productivity in the agricultural sector. (2) the increasing insecurity in terms of water availability. (3) the exposure to extreme phenomena. (4) the collapse



of the ecological system. (5) the Increasing health risks
.()

The United Nations International Panel on Climate Change, appointed by the World Meteorological Organization and the United Nations Environment Program, determined in its report (the fifth assessment) that “climate change is a reality, and human activities are the main cause of it)

The International Organization for Climate Change issued special reports on climate change in October 2018, confirming that the increase in temperature reached (1.5 degrees Celsius) and the average temperature increase by two hundred degrees, emphasizing the years between (2015-2019).) these are the hottest years ever, and the increase in temperature has reached (1.1 °C), the highest recorded temperature in the world for the years before that, and the increase will reach (2 °C) during the next years.

Third: The impact of global climate change on Iraq's climate:

Global climate change has reflected and is still reflecting its effects on the elements of Iraq's climate and the phenomena accompanying it. High temperatures have been recorded between (0.5-1.5 degrees Celsius), above their previous average rates, and the amount of rainfall has decreased, which has

exacerbated the problem of the water crisis in Iraq and threatened water security, and the recurrence of years of drought that Iraq has not witnessed before, which reflected its effects in the decrease in areas allocated for agriculture, and the expansion of desertified areas and witnessed and is witnessing population displacement towards neighboring cities, as a result of the low productivity of agricultural lands, which does not meet the needs of the current and future population increase, as population estimates indicate that the population of Iraq will reach about (45,520,500 people) in (2025 AD) and to (51,211,700 people) in (2030 AD), which will affect food security, which is linked to water security, and environmental tourism has been damaged by what the marshes and swamps areas that were tourist attractions were exposed to and are being exposed to, which made Iraq, according to what the United Nations announced The fifth most affected country in the world by climate change. And the distribution of climate statistics in Iraq for the period between (2000-2020 AD), with temperatures above the averages, and varying between (0.60-0.74 degrees Celsius), the record of the temperature reaching (53.9 degrees Celsius) on (22/7/2016 AD)) in Ali al-Gharbi District in Maysan Governorate, which is the highest recorded temperature throughout history, and continued to rise in temperature until the year. (2020 AD). Figure (1)

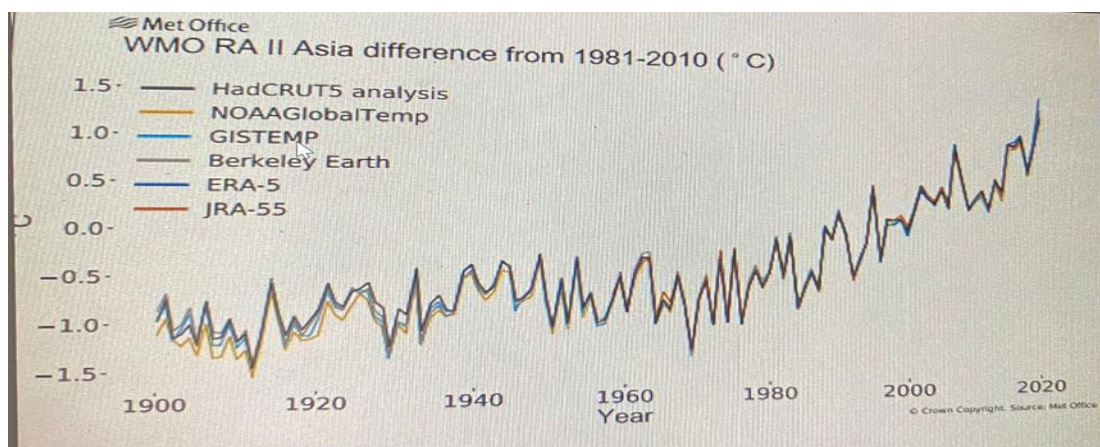


Figure (1) change in temperature for the period between (1981-2010)

It can be followed up as follows:

1: Change in temperature: High temperatures were recorded as a result of this climate change and reached (24.1, 25.9, 26.2, 26.2, 26.4) degrees Celsius in the Basra climate

station during the years (1941 1961/1986 1990/2000-2012/2018 and for each of them respectively see Table (1).

As for the Najaf climate station, it also recorded an increase in temperatures as it reached (2.24) during the period between (1970-1980) and the temperature rose and reached (24.2) during the period between (2001-2007) and the increase continued to reach between (24.2-25.2) degrees Celsius during the recent years extending between (2008-2019 AD).

and the capital city of Baghdad experienced a higher temperature than before, the record of annual average temperatures reached 22 °C during the period between 1941/1961, while the average reached 22.5 °C. (0.5) during the period between (1970-1986 AD), and the increase reached (0.7), during the period between (1999-2007), and the temperature continued to rise to reach (23.1) during the period between (2008-2019), but Al-Mosul Climate Station , which was characterized by moderate temperatures, the temperature levels were around (20 degrees Celsius), while it witnessed a high temperature difference due to the climate change that is affecting the world. The increase between (0.7-0.5) degrees Celsius during the period between (1970-2007), and the increase in temperature during the period between (2008-2019) to (20.7 degrees Celsius).



Table (1) The general trend of temperature in Iraq causes climate change for the period between (1941-2019 AD)

2008 - 2019	2001 -2007	1999 -2000	1970 -1986	1941 -1961	governorate
20.7	20.5	20.7	20	20	Msusul
23.1	22.7	22.7	22.5	22	Baghdad
25.2	24.2	24	24.2		Al nagaf
26 .4	26.2	26.2	25.9	24.1	Basra

According to the above, the temperature recorded in all Iraqi climate stations is above its average annual rates, and what we expect from an increase in those rates as a result of Iraq being affected by the climate change that the world is witnessing, firstly, and according to what was published by the United Nations Framework Convention on Climate Change, that (an increase in temperature by one degree in any country with an average temperature between (24-25°C) secondly, the citizen will suffer from a decrease in his share of potable water to less than half of what he gets now.

and this will be accompanied by a decrease in the individual’s share of production by more than (5%) and the percentage will increase to (10%) until the year (2030 AD) in Iraq, if there are no global and national

efforts to reduce emissions and reduce their climatic effects, especially in temperatures and precipitation.

(2) Change in humidity and precipitation characteristics and their effects Climate statistics :indicate a decrease in rainfall in Iraq as a result of the impact of climate changes in the world. Rainfall decreased at the Basra Climate Station from (140.4 mm) during the period from (1938-1950) to (0.137) during the years between (1941-1970 2019), and reached (133 mm) during the period between (1970-1980), and the rainfall reached about (140 mm) during the period between (1990-2000), while the rainfall decreased and the average total rainfall during the period between (2000-2019) reached less than (104.7 mm). See Table (2)

As for the Najaf climate station, it witnessed a significant decrease in the amount of rainfall, in accordance with the impact of climate change that the



world and Iraq are witnessing. It used to receive amounts of rainfall ranging between (100 - 190.7 mm) during the years between (1961-1970), while the average rainfall totals decreased to range between (90-104.6 mm) during the period between (1971-1990), and the decrease in the amount of rainfall it received increased, so that its records reached (72.7 mm).

As for the Baghdad climate station, the rainfall amounts decreased significantly, as it received larger amounts of (141.6 mm) during the period between (1941-1961 AD), and the decrease in rainfall amounts began and reached (105.11, 127, 151.2 mm) during the years extending between (1970-1980) and (1990-2000) and (2007-2018) for each of them respectively. Table (2)

The decrease in rainfall was not limited to the southern and central regions of Iraq, but also to the northern region. The Mosul climate station had rainfall exceeding (373.1 and 379 mm) during the two time periods (1970-1980 AD) and (1990-2000 AD) for each of them respectively, while the discrepancy reached less than (301.2 mm) during the period between (2007-2018 AD)

The rainfall amounts in Mosul Climate Station decreased from their annual averages during the years preceding (2000 AD), which were more than (370.3 mm), as they reached between (146.9 294.7 mm) and recorded (193.8, 216.3 223.8, 240.6, 294.7, 278.6, 340.8, 292.7, 289.2, 146.9 mm) for the years (2007, 2008, 2009, 2010, 2011, 2012, 2014, 2015, 2016, 2017 AD)

Table (2) The impact of climate change on the decrease in annual rainfall amounts in a number of climate stations in Iraq for the period between (1941-2018 AD).

2007 2018	1990 2000	1970 1980	1941 - 1991	Governorate
104.7	140	133	140	Basra
72.7	104.6	97	-	Al nagaf
101.2	127	105.4	141.6	Baghdad
301.2	370.3	379	373.1	Msusul



Table (3) indicates a significant decrease in rainfall amounts in a number of climate stations. Kirkuk Climate Station received rainfall amounts exceeding (376.6 mm) before 2000 AD, while it decreased and reached (173.1, 134.9, 225.9, 297.2, 221.8, 292.1, 319.321, 204.5 mm) for the years 2007, 2008, 2009, 2010, 2011, 2012, 2014, 2015, 2016, 2017 AD, respectively. The rainfall amounts in Mosul Climate Station decreased from their annual averages during the years preceding (2000 AD), which were more than (370.3 mm), as they reached between (146.9 294.7 mm) and recorded (193.8, 216.3 223.8, 240.6, 294.7, 278.6, 340.8, 292.7, 289.2, 146.9 mm) for the years (2007, 2008, 2009, 2010, 2011, 2012, 2014, 2015, 2016, 2017 AD) respectively

respectively. Rainfall decreased to less than the total annual average at Khanaqin climate station, which was more than (312.1 mm) before the year (2000 AD) and reached (222.3, 257.1, 197.9, 164.7, 206.9, 167.2, 301.9, 255.9, 199.7, 144.2 mm) for the years (2006, 2007, 2008, 2009, 2010, 2011, 2012, 2014, 2016, 2017 AD) respectively

In addition, the decrease was more evident in the climate stations in the central and southern regions on the one hand and the western regions on the other hand. The Baghdad climate station recorded less

quantities than what it received before the year (2000 AD), which was more than (127.4 mm), while the average total rainfall amounts after that were recorded as reaching less than (99.2, 59.11, 67.5, 92.5, 96, 108, 104.5, 71.8 mm) for the years (2007, 2008, 2009, 2010, 2011, 2014, 2016, 2017 AD) respectively.

As for the Rutba climate station, climate statistics indicate a decrease in the amount of rainfall compared to the annual rainfall it received before the year (2000 AD), which was more than (124 mm), while it reached (44.2, 58.4, 72.9, 23.3, 109, 90.8, 73.0, 41.9, 88.2, 72.2, 80.2 mm) for the years (2006, 2007, 2008, 2009, 2010, 2011, 2012, 2014, 2015, 2016, 2017 AD) respectively. Table (3)

As for the Najaf climate station, rainfall decreased from the average total amounts before 2000 AD, which amounted to (104.6 mm), as it reached (35.9, 72.4, 64.3, 50.3, 71.3, 48, 8.99, 39.7, 94.20, 80.37 mm) for the years (2007, 2008, 2009, 2010, 2011, 20132, 2014, 2015, 2016, 2017 AD) respectively. Finally, the Basra climate station received rainfall amounts exceeding (148 mm) before (2000 AD), while it reached (130.2, 67.10, 89.8, 90.31, 115.3, 51.3, 107.5, 131.5, 86, 965.10 mm) for all years except 2018 season



Table (3) Decrease in rainfall due to climate change in a number of climate stations in Iraq during the period between (2006-2017 AD).

Basra	Nagaf	Rutba	Baghdad	Khanaqin	Mosul	Kirkuk	Sulayman lyah	year
174.1	190.7	44.2	162.3	205.2	511.2	458.4	812.6	2006
139.2	35.9	58.4	99.2	257.10	193.8	173.1	589	2007
67.10	72.4	72.9	59.11	197.9	216.3	134.9	380.4	2008
89.8	64.3	23.3	67.5	164.7	223.8	225.8	414.4	2009
31.9	50.3	109	92.5	206.9	240.6	267.2	635.9	2010
65.3	71.3	87.9	96	167.2	294.7	221.8	812.6	2011
115.3	48.8	73.01	184.4	301.9	278.6	292.1	589	2012
51.3	156.1	135.2	296.7	355.4	455.5	394.3		2013
107.5	99	157.6	108	255.9	340.8	319		2014
131.5	39.7	88.2	190.9	391.8	292.7	315.5		2015
86.9	94.2	70.2	104.5	199.7	289.2	321		2016
65.10	37.8	80.2	71.8	144.2	146.9	206.5		2017

The impact of climate change in Iraq on the environment

United Nations studies indicated that the total areas affected by what Iraq's climate has witnessed and is

witnessing, which have gone beyond agriculture, have reached more than (100 million dunums) out of (148 million), and have been included in desertified lands, in addition to the accompanying migration of millions of



people, who were displaced from their places of residence due to the desertification of agricultural lands first, in addition to the shortage of irrigation water supplies second, which has been accompanied by environmental problems in both urban and rural areas.

In addition, according to reports issued by the World Tourism Organization, the most important touristic site in Iraq, represented by the marshlands environment, has been affected by climate change, and these effects have been reflected on it after it had natural potential to attract tourists, as it combines the beauty of the natural marshes, and the diverse and unique plant and animal organisms that live in it in the world. The marshes used to cover areas in the governorates of Basra, Maysan, and Dhi Qar, reaching about (19,000 km²), but it has now decreased to (635 km²), and it was rich in fish wealth and many other aquatic organisms, in addition to different types of plants from reeds and papyrus, and its moderate climate in the summer, made it an attractive area for large numbers of migratory birds that settle and breed in it during the warm winter, to return again to their original habitats within large migrations extending towards the continents. It was inhabited by various numbers and types of rare animals in the world, but climate changes affected their disappearance, such as (Asian lions), and there remained small numbers of wild cats, jackals, pigs, and a few types of snakes. In addition to that, it

was and still is a tourist destination for thousands of Arab and foreign tourists who visited it during the sixth and seventh decades of the last century for its natural beauty and the kindness of its indigenous people who were known as (the Ma'dan), who are descendants of the Sumerians, and the owners of the oldest great civilization in the world, which is the civilization of the Tigris and Euphrates Valley, which is estimated to be more than seven thousand years old. (1)

In addition to being a natural water reservoir, the water absorption capacity of the Al-Hawizeh and Al-Hammar marshes alone is more than (7 billion/m³), and between (3.5-5.4 billion/m³) in the flood season for each of them respectively, in addition to their position as one of the richest oil regions in the world, as the largest and most important oil fields are located in the Basra marshes, and oil experts in the world confirm: (that the last barrel of oil in the world will be extracted from the southern marsh region), and the archaeological sites in it, all of this made it an attractive environment for global tourism, as its revenues reached (one billion and 648 million dinars during the year 2015 AD) only, and its population decreased from half a million people to (85,000 people),

(1) Adnan Abbas Al-Naqeeb, International Protection from the Global Warming Phenomenon, College of Law, University of Baghdad, without numberin.



Scientific studies indicate that one of the most important reasons for this is climate change, which was accompanied by a decrease in rainfall in Iraq and the sources of the rivers feeding the marshes, and the recurrence of the drought phenomenon, in addition to what the geographically neighboring countries (Turkey, Iran and Syria) did to build dams and reservoirs, and change the courses of rivers in Iran that used to flow into the Hammar Marsh, which is a shared water body with them. This decrease in the area of the marshes was due to reasons related to the crime of drying that the previous regime adopted for political purposes first, and the climate change that we suffer from second, which contributed to the decrease in the number of tourists and the damage to the economy of its residents and their migration, which prompted the demand to restore the natural environment of the marshes to its former state, especially after it was included in the list of the world's natural environmental heritage of UNESCO on (July 17, 2016).

Global climate change has affected Iraq mainly through the decrease in surface water sources, including groundwater. The United Nations published a report on 14/3/2018 stating that the water crisis in Iraq will increase in impact year after year due to the decrease in water supplies that feed the Tigris and Euphrates rivers and their tributaries. This is due to the decrease in rainfall and the decline in snowfall on mountain peaks in the areas that feed them, which has

exposed and will expose millions of Iraqis to the lack of access to water, whether for human uses or for other economic activities, most notably agriculture

Statistics indicate a decline in the discharge rates of the Tigris and Euphrates rivers from (80 billion m³) during the period between (1950-1960), and those rates had recorded a water revenue of (5.85, 9.78, 86, 76, 7.80 millibars/m³) during the seasons (1971/1972, 1972/1973, 1975/1976, 1977/1978, 1979/1980) respectively. However, the annual water revenue of the Tigris and Euphrates rivers reached (22.71, 61.78, 12.78 billion/m³) during the years (1985, 1986, 1988) for each of them respectively). The statistics in Table () indicate that the total water revenue of the Tigris and Euphrates Rivers reached (70.26 billion/m³) during the season (1980/1981 AD), and then the decrease continued for reasons related to the climate change witnessed by the world and the accompanying decrease in rainfall, whether in the areas feeding the sources or inside Iraq, so the total water revenue reached (30.69 billion/m³) during the season (2000-2001 AD) compared to the previous revenues which were between (76.9 - 86.9 billion/m³) during the seasons before the year (1980 AD). Table (4)

Statistics also show a decrease in what reaches Iraq during the following seasons, reaching (65.54, 35.07, 38.64, 32.3, 32, 53.60, 40 billion/m³) during the seasons (2004/2005), (2007/2008), (208/2009), (2009/2010), (2010/2011), (2015/2016), (2016/2017) respectively, and



water revenues decreased until they also reached (2017/2018), (2019/2020) for each of them respectively. (32.69, 49.59 billion/m3) during the seasons Table (5)

Table (4): The decrease in water revenues of the Tigris and Euphrates rivers in light of climate change and the policies of the countries that feed our water resources

The total	Euphrates	Tigris	Water Year
70.26	34	36.26	1980 /1981
68	27	41	1980 /1984
68.8	30	38.8	1996 /1997
30.69	9.56	21.13	2000 / 2001
54.65	17.57	37.08	2004 /2005
35.07	14.7	20.37	2007 /2008
38.64	19.32	19.32	2008 / 2009
32.3	9.3	23	2009 /2010
32	14	18	2010 /2011
53.60	15.15	38.45	2015 / 2016
40	13.69	26.31	2016 /2017
32.96	9.56	23.40	2017 /2018
93.47	16.95	76.52	2018 /2019
49.59	20.20	29.39	2019 /2020



Table (5): Annual revenues of the Tigris and Euphrates rivers and their tributaries for the year 2017.

Length (km)	ratio%	Annual revenue (billion/m3 (2017	2016 Annual revenue (billion/m3() 15.37	The river and its tributaries
1900) 1418 In Iraq (34.1	13.81	Including Khabur waters(* Tigris
392	17.9	7.25	10.55	** Upper Zab
396	7.6	3.09	6.75	Lower Zab
230	2.0	0.81	1.15	alothem***
386	5.9	2.41	5.78	Diyala
-	67.5	27.37	39.60	Total revenues of the Tigris River and its tributaries



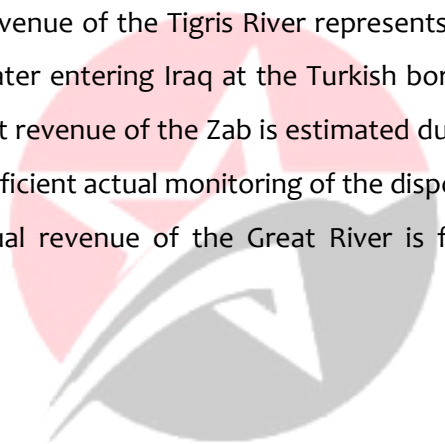
2940 (1160) In Iraq	32.5	13.16	15.15	**** Euphrates
-	100.0	40.53	54.75	Total revenues of the Tigris and Euphrates rivers

The annual revenue of the Tigris River represents the amount of water entering Iraq at the Turkish border:

** The highest revenue of the Zab is estimated due to the lack of sufficient actual monitoring of the disposal.

*** The annual revenue of the Great River is from

inside Iraq only and the rest is from the source to the mouth of the Tigris River**** The annual revenue of the Euphrates River represents the average after the operation of the Turkish-Syrian dam system since 199



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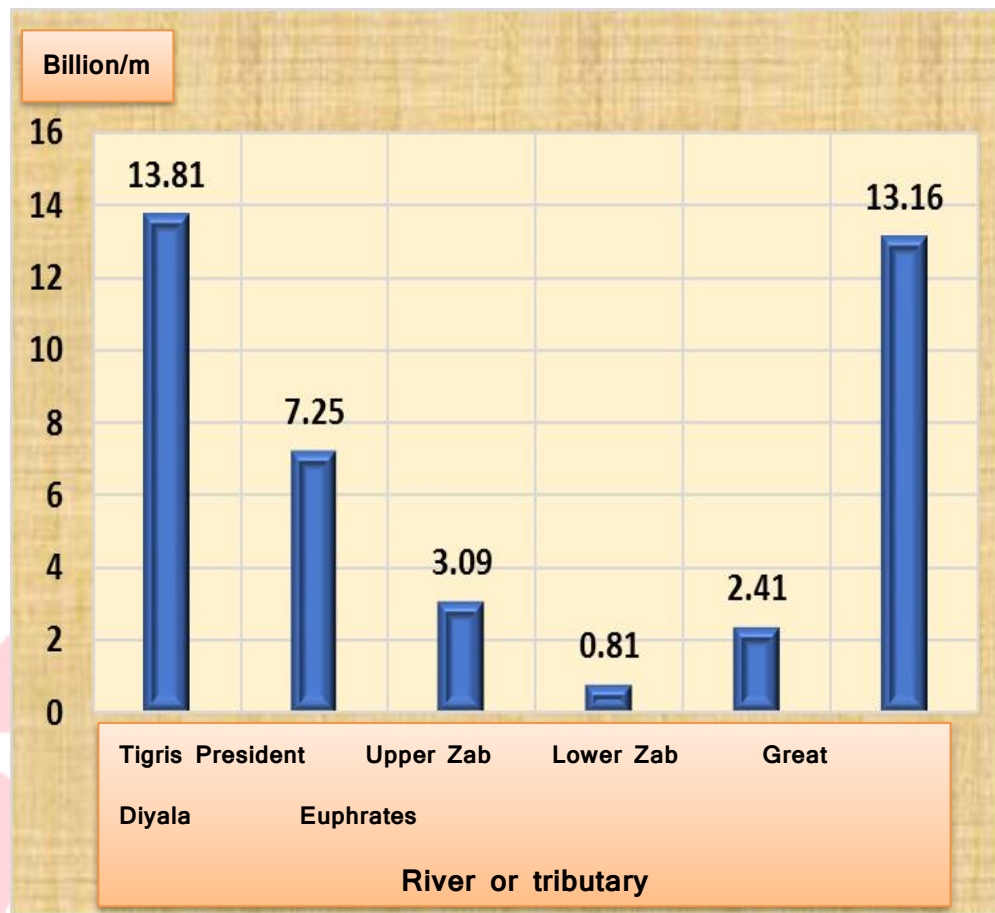


Figure (2):

Annual revenues of the Tigris and Euphrates rivers and their tributaries for the year 2017.

Table (6): Annual revenues of the Tigris and Euphrates rivers and their tributaries for the year 2018



Length (km)	Ratio%	Annual revenue 2018 (billion/m3)	2017 Annual revenue (billion/m3)	The river and its tributaries	
1900)) 13.81	* Tigris	
1418) In Iraq (27.1	8.92	Including Khabur waters(
392	21.1	6.94	7.25	** Upper Zab	Tributaries
396	10.4	3.44	3.09	Lower Zab	
230	2.4	0.79	0.81	*** alothem	
386	10.0	3.31	2.41	Diyala	
-	71.0	23.4	27.37	Total revenues of the Tigris River and its tributaries	
2940 (1160)	29.0	9.56	13.15	**** Euphrates	

-	100.0	32.96	40.53	Total revenues of the Tigris and Euphrates rivers
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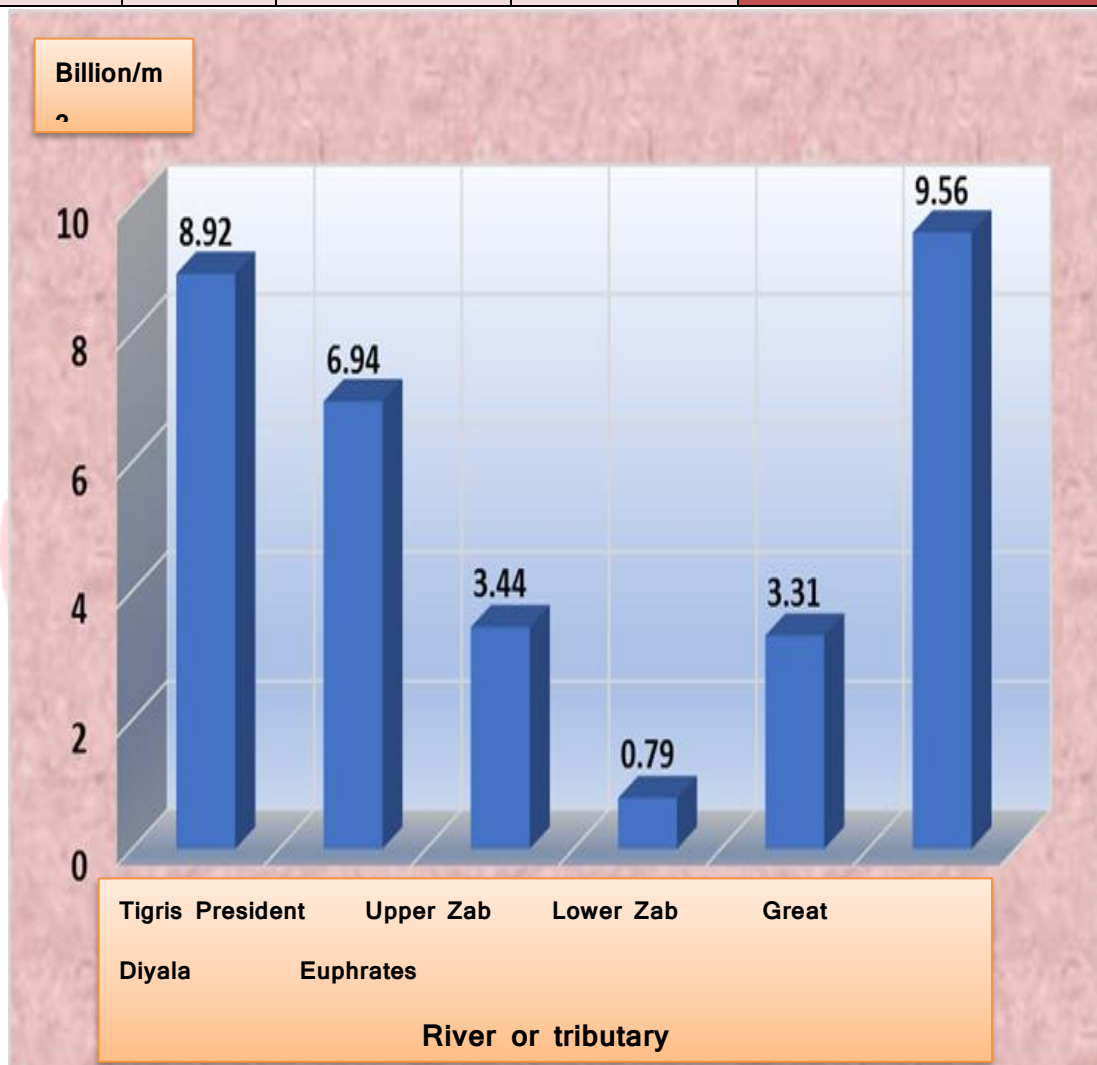


Figure (3): Annual revenues of the Tigris and Euphrates rivers and their tributaries for the year 2018



Table (7): Annual revenues of the Tigris and Euphrates rivers and their tributaries for the year 2020

Length (km)	% Ratio	Annual revenue (billion/m3) 2020	Annual revenue (billion/m3) 2019	The river and its tributaries
1900	23.1	11.44	31.29	*Tigris
392	20.6	10.23	20.67	** Upper Zab
396	8.7	4.29	44.50	Lower Zab
230	1.9	0.94	2.11	alothem ***
386	5.0	2.49	10.89	Diyala
-	59.3	29.39	76.52	Total revenues of the Tigris River and its tributaries

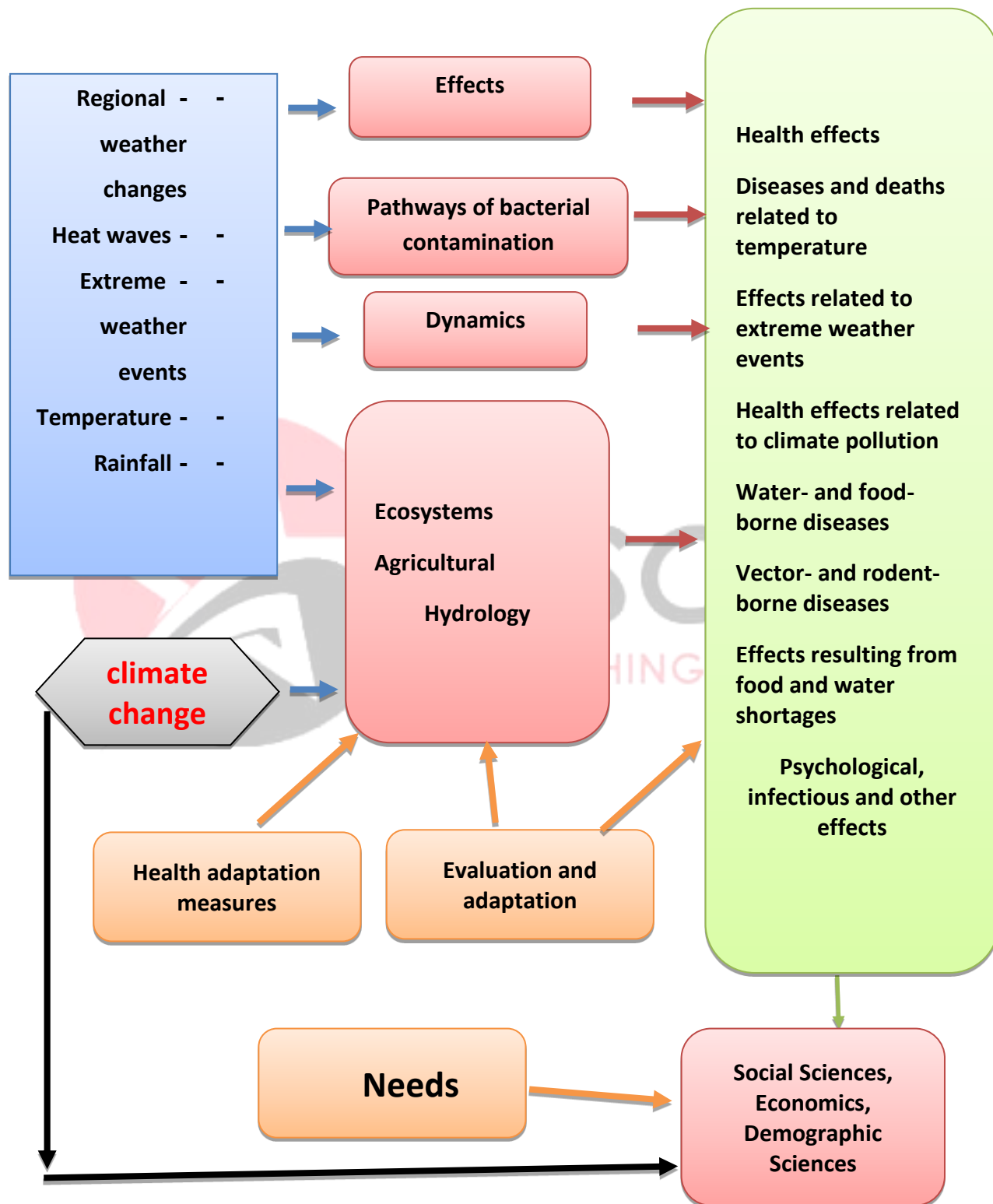


2940 1160)	40.7	20.20	16.95	Euphrates****
-	100.0	49.59	93.47	Total revenues of the Tigris and Euphrates rivers

The annual revenue of the Tigris River represents the amount of water coming into Iraq at the Turkish border. ** The highest revenue of the Zab is an estimate due to the lack of sufficient actual monitoring. *** The annual revenue of the Great River

is from inside Iraq only and the rest is from the source to the mouth of the Tigris River. **** The annual revenue of the Euphrates River represents the average after the operation of the Turkish-Syrian dam system since 1994







The second topic

The role of the United Nations and international conferences of the parties on climate change

First: the United Nations conferences

The United Nations has held conferences on the environment, due to the emergence of many problems that have begun to threaten the environment, most notably the problem of climate change, which has begun to threaten all countries of the world and threatens the danger of declaring wars on humanity and the effects that will be reflected in natural biological systems.

so Sweden proposed for the first time to the United Nations Economic and Social Council in 1968 the idea of holding a United Nations conference to discuss the role of human factors in this problem, so the Economic and Social Council issued Resolution No. (1346) supporting the idea, and General Assembly Resolution No. (2398) in 1969 approved holding the conference in 1972 in Stockholm.

First: Stockholm Conference

The United Nations Conference on the Environment was held in the capital, Stockholm, Sweden, during the period between (5-16 June) 1972. It was attended by representatives of (113 countries), in addition to representatives of organizations, bodies and programs affiliated with the United Nations and representatives

of regional organizations concerned with the environment, with the attendance of (1200) people.

It resulted in the establishment of a specialized agency in environmental affairs, called the United Nations Environment Program (UNEP).

The conference resulted in documents of more than (1200) pages in a book entitled (We have nothing but the Earth), and committees branched out from the conference,

The First Committee: Specialized in the social and cultural needs for environmental protection.

The Second Committee: Specialized in the topics of preserving natural resources.

The Third Committee: Specialized in the international measures that can be taken to combat environmental destruction

The Stockholm Declaration is the first international document that defines the principles of international relations in environmental affairs, as its first article states (Man has a fundamental right to freedom, equality and decent living conditions in a clean environment that allows him to live in dignity and well-being

Second: Vienna Conference

The Vienna Agreement was held between (March 18-22) 1985, with the participation of fifty countries and



international organizations. The preamble included twenty-one articles and entered into force on September 22, 1988. This agreement contains framework obligations to protect the ozone layer in order to preserve the environment.

Third: United Nations Conference in 1988

The United Nations held the first international forum on climate change in (Toronto) Canada and decided to establish a scientific body to study evidence of climate change, abbreviated as (IPCC). The Intergovernmental Panel on Climate Change (IPCC) was formed in 1988 in cooperation with the World Meteorological Organization (WMO) and the United Nations Program (UNEP). The United Nations officially approved the establishment of the Intergovernmental Panel on Climate Change for the following reasons:

(A number of human activities can contribute to changing global climate patterns, threatening current and future generations with potentially severe economic and social consequences), in addition to that (the continued rise in concentrations of (greenhouse gases) in the atmosphere can lead to global warming with rising sea levels, and its effects will be catastrophic for humanity if serious steps are not taken in a timely manner and at all levels).

The Intergovernmental Panel on Climate Change (IPCC) was established to provide comprehensive estimates of the state of scientific, technical, social and

economic understanding of climate change, its causes and potential impacts, and strategies to address this change. Its purpose is to conduct scientific research and evaluate information related to climate change from a scientific, technical, economic and social perspective. The panel submitted its report in 1990. It currently includes (195) countries, (in 1988, it consists of three thousand climate scientists, to provide estimate

The IPCC adopted the “Principles Governing the Work of the IPCC,” which state that the IPCC will assess:

- (1) The risk of human-induced climate change.
- (2) The potential consequences of global warming.
- (3) Possible options for mitigating the effects of climate change

Fourth: The Rio de Janeiro Conference

(Earth Summit):

The Rio de Janeiro Conference was held in June 1992 in Brazil. It was the first global conference on the environment and development, called the Earth Summit. It was attended by (168 countries). Representatives of the countries of the world held the founding conference of the Framework Convention on Climate Change for the first time in the city of (Rio de Janeiro) in Brazil in 1992, after the countries of the world, led by the United Nations, were convinced that the problem of global warming and its effects on



humans and the environment were a cause of concern for governments and the public. It was noted that since 1860.

The average temperature in the world has risen between (0.3 - 0.6) degrees Celsius, and scientists specializing in this field estimate that the rise will increase until the year 2100 to reach between (1 - 3.5 degrees Celsius), as a result of the increase in greenhouse gas emissions from various human activities that have contributed and are contributing to the problems accompanying global climate change, and obligating the countries causing emissions to the level they were at before the year (1990 AD).()

The third topic

International Conferences of the Parties (C.O.P) and their decisions on global climate change and its impacts

The term (C.O.P) is an abbreviation for the term (Conference Of Parties), which means "Conference of the Parties" in English, i.e. the supreme administrative body of any international agreement, including the United Nations Framework Convention on Climate Change (UNFCCC)

United Nations Framework Convention on Climate Change

The conferences were attended by countries that ratified the Framework Convention on Climate Change,

called the Parties (197 countries) at the time. In this section, we will focus on all the Conferences of the Parties and the binding decisions that were taken to limit the impact of global climate change:

The first Conference of the Parties (COP:1): (Berlin / Germany) The first Conference of the Parties (COP1) to the United Nations Framework Convention on Climate Change was held between March 28 and April 7, 1995 in Berlin, Germany. The parties set targets for reducing emissions of gases that cause climate change, and reviewed the possibilities for reducing emissions of polluting gases. Countries expressed their concerns about the failure to comply with the decisions adopted by the Subsidiary Body for Scientific and Technological Advice (SBSTA). The first Conference of the Parties agreed on "Jointly Implemented Activities," the first joint measures in international climate action.

Second: The Second Conference of the Parties (COP2) of the United Nations on Climate Change Geneva, Switzerland:

The second session of the Conference of the Parties (COP2) was held between 8 and 19 July 1996 in Geneva, Switzerland. Its Ministerial Declaration was referred to, but it was not adopted on 18 July 1996; due to the position of the United States, presented by the former Under Secretary of State for Global Affairs (Timothy Wirth) at that meeting, which included: (1) Adopting the scientific findings on climate change presented by



the Intergovernmental Panel on Climate Change in its Second Assessment (1995). (2) Rejecting the unification of “coordinated policies” in favor of flexibility.

Third: The Third Conference of the Parties on Climate Change (COP3), Kyoto, Japan

The third session of the United Nations Conference of the Parties on Climate Change (COP3) was held in September 1997 in Kyoto, Japan. About 10,000 delegates, observers, and journalists participated in the conference, with the attendance of representatives from all industrialized countries concerned and most other countries in the world. The conference is an executive step for the United Nations Framework Convention on Climate Change, which is one of the largest international conferences concerned with climate change.

The main objective of this agreement was to identify the gases that cause and contribute to raising the temperature, including (carbon dioxide, methane, and ozone), but the focus was on carbon dioxide because it contributes 70% of the gases that cause climate change and raise the temperature of the Earth.

The Kyoto Protocol legally obliges the parties from developed countries to reduce and collectively limit emissions of (greenhouse gases) by at least (5%), with the reduction to be carried out at different rates during the initial commitment period of the protocol between

the years (2008-2012). This agreement entered into force in 2005 AD.

The Kyoto Protocol of 1997 in Japan is the first binding agreement for all countries to reduce the concentration of greenhouse gases in the atmosphere to limit damage to the Earth's climate system. As for the obligations that make up the first group, they are joint obligations that all contracting parties undertake to implement. These obligations are: (Reducing greenhouse gas emissions at rates that vary from one country to another, provided that this reduction takes place within a specific period of time starting in 2008 and continuing until 2012, and working to absorb greenhouse gas emissions that cause climate change. As for flexibility mechanisms: they mean the mechanisms that work to reduce emissions and minimize harmful effects, but at the same time they take the economic dimension when calculating their production costs. This part indicates the possibility of reaching the goal.

Fourth: The United Nations Conference on Climate Change (COP4) in Buenos Aires, Argentina, 1998

The fourth Conference of the Parties (COP4) was held in November, between 2-14 November 1998, in Buenos Aires, Argentina. The conference included discussing the remaining issues that were not resolved in the Kyoto Protocol. Despite this, it was proven that no agreement was reached on these issues. Argentina and



Kazakhstan have fulfilled their commitments and pledged to reduce emissions of gases that cause global warming. They are the first two countries not included in the annex to do so.

Fifth: The United Nations Climate Change Conference (COP5) in Bonn, Germany in 1999

The fifth Conference of the Parties (COP 5) was held during the period between (October 25 - November 5) 1999 in Bonn, Germany, and was attended by about (5000 participants) from (150 countries). The conference confirmed the activation of the 1992 agreement, and governments were given a period of (12-18 months) only to agree on the operational details of the Kyoto Protocol of 1997.

Sixth (A): The United Nations Climate Change Conference (COP6) in The Hague/Netherlands 2000

The sixth Conference of the Parties (COP6) was held between (13-25 November) 2000 in The Hague/Netherlands, and no agreement was reached. As a result, the Executive Secretary of the United Nations Framework Convention on Climate Change directed that:

(The increase in human activity has a negative impact on our climate), and the world has recognized this since 1992 at the Earth Summit in Rio de Janeiro, when the United Nations Framework Convention on Climate

Change (UNFCCC) was opened and the climate change agreement was signed.

The meeting witnessed the rejection of all European Union countries, led by Denmark and Germany, of the intermediate positions in the final hours of the conference, and the talks collapsed. (Jan Pronk), President of the sixth session of the Conference of the Parties, commented that the sixth Conference of the Parties did not reach an agreement, hoping to resume negotiations later. It was later agreed that the sixth session of the Conference of the Parties (called "COP6 bis") would resume in Bonn, Germany.

Sixth (b): United Nations Conference on Climate Change (COP 6) (Bonn/Germany 2001):

Negotiations for the sixth Conference of the Parties (COP6) resumed between (17-27 July 2001) in (Bonn/Germany), and little progress was made in resolving the differences after George W. Bush became President of the United States and rejected the Kyoto Protocol in March 2001; their delegation chose to play the role of observer at the meeting. The agreement included the following:

(1) Flexibility mechanisms: including emissions trading, joint implementation, and the Clean Development Mechanism (CDM Clean Development mechanism), which allows industrialized countries to finance emission reduction activities in developing countries as an alternative to local emission reductions.



(2) Carbon sinks: (sinks): It was agreed to grant credit for large-scale activities that absorb or store carbon from the atmosphere. Thus, a maximum of (13 million t) to Japan (which represents about 4% of base year emissions, and countries can only receive credit for increases in carbon sequestration above 1990 levels.

(3) Compliance: to the provisions of the Convention until COP7.

(4) Financing: It was agreed to establish three new funds to provide assistance for climate change-related needs:

1- The Climate Change Fund, which supports a range of climate measures.

2- A Least Developed Countries Fund to support national adaptation programmes of action. And an Adaptation Fund under the Kyoto Convention, supported by a levy from the Clean Development Mechanism and voluntary contributions.

3- An Adaptation Fund under the Kyoto Convention, supported by a levy from the Clean Development Mechanism and voluntary contribution

Seventh: United Nations Climate Change Conference (COP7) in Marrakesh/Morocco 2001:

The seventh meeting of the Conference of the Parties (COP7) was held in (Marrakesh-Morocco) during the period between (October 29 - November 10, 2001), and

a number of decisions were taken known as the (Marrakesh Agreements) package, and the date of the World Summit on Sustainable Development (August - September 2002) was set as a target for the entry into force of the Kyoto Protocol. The World Summit on Sustainable Development (WSSD) was scheduled to be held in Johannesburg, South Africa

Eighth: The United Nations Climate Change Conference (COP8) in New Delhi/India 2002

The eighth Conference of the Parties (COP 8) was held in New Delhi between (October 23 - November 1, 2002), and adopted the (Delhi Declaration), which called on developed countries to transfer technology and reduce the impact of climate change on developing countries.

The eighth Conference of the Parties (COP8) was characterized by Russia's hesitation and its request to extend the time. The United States contributed and refused to sign, and Australia refused to ratify, and Russia's approval was only (17%) of global emissions compared to what it was in 1990.

Ninth: United Nations Climate Change Conference (COP9) in Milan, Italy, 2003

The ninth session of the Conference of the Parties (COP9) was held between (1-12 December 2003) in the Italian city of Milan, with the participation of (189 countries).



The conference was held under the umbrella of the (United Nations Framework Convention on Climate Change), of which the United States is still a member, despite its withdrawal and non-accession to the (Kyoto) Agreement. The parties agreed to use the Adaptation Fund that was established in (COP7) in 2001 to support developing countries in adapting to climate change.

Tenth: United Nations Climate Change Conference (COP10) in Buenos Aires, Argentina, 2004

The United Nations Climate Change Conference (COP10) was held in Buenos Aires, Argentina, from 6 to 17 December 2004, with representatives from 170 countries in attendance. The conference aimed to determine whether commitments to reduce carbon dioxide emissions should be tightened as the agreement expires in 2012. On the eve of the conference, the United States showed no sign of backing down from its opposition to the agreement and said it had chosen a different path than Kyoto to protect the environment, but it pledged to work to reduce global warming.

Eleventh: The United Nations Climate Change Conference (COP11) in Montreal, Canada, 2005

The eleventh Conference of the Parties (COP11) was held from 28 November to 9 December 2005 in Montreal, Quebec, Canada. This conference is considered one of the largest international

governmental conferences on climate change ever. The conference hosted more than (10,000) delegates from specialists, observers, representatives of industrial institutions, businessmen, and scientific groups, in addition to representatives of groups concerned with the environment and climate change

The conference succeeded in including the United States in the idea of long-term cooperation and ensuring the priority of the Kyoto Protocol. The conferees sought to determine the commitments in numbers to reduce greenhouse gas emissions on the major southern countries, especially China and India, which were not subject to any commitments in Kyoto, which ends in 2012.

The positions of the participating countries were divided into three directions:

The first: includes (30 countries) of the industrialized countries that signed and are committed to the Kyoto Protocol.

The second: includes emerging industrialized countries such as China, India and Brazil, which are currently enjoying economic growth rates and contribute (8%) of the pollution resulting from emitted gases.

The third: includes third world (developing) countries in which polluting gas emissions are less than global rates.



It will enable it to transfer clean technology and benefit from advanced expertise, capabilities and information to control emissions from its industrial activities as well as the use of clean fuel.

Thirteenth: United Nations Climate Change Conference (COP13) in Bali/Indonesia, 2007

The Thirteenth Conference of the Parties (COP13) was opened in (Nusa Dua) in the Indonesian city of (Bali) during the period between (3-17 December 2007), and the Kyoto Protocol and the United Nations Framework Convention on Climate Change were at the forefront of the conference attendees' attention.

United Nations experts considered this conference to be one of the most important international conferences held on climate, which for the first time included a large number of stakeholders from countries around the world, reaching (10 thousand delegates) and included for the first time about (130) environment ministers to develop a promising future agreement that constitutes a strong push for the Kyoto Protocol and to avoid humanity the danger of the consequences of climate change. The conference participants faced many difficulties, especially with regard to the credibility of the countries and their financial and moral commitments. Disagreements occurred between the European Union and the United States on the one hand, and Japan and Canada on the other hand, regarding emission rates. The European

Union wants the Bali talks to lead to an agreement on a non-binding target to reduce emissions between (25-40%) by the year 2020 in industrialized economies, while the United States rejected this rat

Fourteenth: The United Nations Climate Change Conference (COP14) in Poznan/Poland

The United Nations Climate Change Conference (COP14) was held between (1-12 December 2008) in the Polish city of Poznan with the participation of more than (12 thousand delegates), and included (187 countries). It was planned to discuss ways to enhance understanding about (a common vision) for a new climate change system and commitment to reducing polluting emissions, in addition to establishing an adaptation fund and adopting a consensus document on the common vision for long-term cooperation within the framework of the international agreement. The conference concluded its work after adopting a roadmap to reach a global agreement to limit global warming. The conference pointed out that human activities have exerted great pressure on various aspects of its environment, exceeding its capabilities. Another UN official also pointed out the consequences of countries' failure to act to confront the problem facing the world. The conference reached a number of decisions and recommendations that would mitigate the severity of this phenomenon, include



A- Establishing a fund to help poor countries adapt

B- B- The readiness of all industrialized countries that signed the Kyoto Protocol, except for (the United States

Fifteenth: The United Nations Climate Change Conference (COP15) in Copenhagen/Denmark 2009

The fifteenth Copenhagen Climate Change Conference (COP15), or the "Copenhagen Summit", was held in the Danish capital between 7-18 December 2009. Ministers and officials from 192 countries participated in the Copenhagen meeting, in addition to participants from a large number of civil society organizations.

The conference participants developed a map for a strategy aimed at reducing emissions of greenhouse gases resulting from the burning of coal, oil and gas, coinciding with the end of the first phase of the Kyoto Protocol commitments.

The conference did not reach a binding agreement for long-term work, but rather a "political agreement" of 13 paragraphs by approximately 25 parties, including the United States and China. A statement was issued by heads of state, heads of government, ministers and heads of delegations, which included the following:

(We all seek to achieve the ultimate goal To the agreement and in accordance with what is stated in Article (2) thereof, and we are guided by the principles and provisions of the agreement)

Table (8): Pollutant emissions to the atmosphere in 2020 compared to previous years

Reduction compared to 1990 level	Reference year	Reducing emissions by 2020		Commitment to reduce emissions of countries listed in Annex 1 in their submissions to
From -3.89% to 24.1%	2000	From Kh% Taha - 15/brother %	Australia	
	1990	From -5% to -10%	Belarus	
	2005	%17-	Canada	



	1990	%5	Croatia	the Copenhagen Accord of 2009 (Source: Copenhagen Outcome, Negotiations and Agreement, Climate Policy Series of the Environment and Energy Group and UNDP PNUD 2010(
	1990	Narwhal %20- to- %30	27 European Union-	
	1990	%30-	Iceland	
	1992	%15-	Kazakhstan	
	1990	%25-	Japan	
	1990	Narwhal- %20- to %30	Liechtenstein	
	1990	1- Narwhal- %0 to%20	New Zealand	
	1990	3- Narwhal %0 to- %40	Norway	

Sixteenth: United Nations Climate Change Conference (COP16) in Cancun/Mexico 2010

The sixteenth Conference of the Parties (COP16) was held in (Cancun, Mexico), between (November 29 - December 10) of 2010, and about (193 countries) and

about (15 thousand people) from government delegations, environmental experts, non-governmental organizations, businessmen and media professionals participated in this conference.



The parties agreed to consider the adequacy of the long-term global goal during the review (2013-2015), and the (Cancun) Agreement contributed to the establishment of new institutions including the (Cancun Adaptation Framework), the Adaptation Committee and the Technology Mechanism.

The package of decisions that were adopted was called (Cancun Agreement) and included:

The need to keep the temperature rise between (1.5-2 degrees Celsius), and a long-term climate finance fund was established to support developing countries, which was known as the "Green Climate Fund" aims to raise aid worth \$100 billion annually for poor countries. It aims to strengthen clean energy markets, enhance cooperation in the field of technology and enhance the ability of vulnerable populations to adapt to climate change.

Seventeenth: United Nations Climate Change Conference (COP17) in Durban, South Africa, 2011

The seventeenth Conference of the Parties (COP17) was held in Durban, South Africa, between (November 28 and December 9, 2011), with the participation of (194) countries under the auspices of the United Nations. The Durban Conference included a number of topics, including: (1) Agreement to set a second commitment period under the Kyoto Protocol. (2) Agreement to operate the Green Climate Fund.

Eighteenth: United Nations Climate Change Conference (COP18) in Doha, Qatar

Qatar hosted the 18th Conference of the Parties (COP18), which was held in Doha, Qatar, between 26 November - 7 December 2012.

This conference resulted in a package of decisions referred to as the "Doha Climate Gateway".

The data indicated that only little progress was made towards financing the Green Climate Fund with the participation of (194 countries), and the results of the Doha Climate Conference are as follows:

(1) Amending the Kyoto Protocol:

The Kyoto Protocol, as the only existing and binding agreement under which countries commit to reducing greenhouse gases, was amended so that it will remain in force (January 1, 2013), and the second commitment period will be (8 years).

(2) Agreeing on a timetable for the global agreement on climate change for the year 2015 and increasing ambition before 2020

(3) Long-term financing for climate action.

Nineteenth: United Nations Climate Change Conference (COP19) in Warsaw/Poland 2013

The nineteenth Conference of the Parties (COP19) was held in Warsaw, Poland, between 11-23 November 2013.



The conference was technical, and it reached an agreement that all countries should begin reducing emissions as soon as possible, preferably by the first quarter of 2015. The term “specific emissions” was introduced in Warsaw based on a proposal from Singapore, and the Warsaw International Mechanism was also proposed.

Twenty: United Nations Climate Change Conference (COP20) in Lima, Peru 2014

The Conference of the Parties (COP20) was held in the city of Lima, Peru, and delegations from (196 countries) met. The negotiations in Lima focused on the results of the work of the working group, which are necessary to advance towards the Paris Agreement. The twentieth session of the Conference of the Parties adopted the "Lima Call for Climate Action", which was decided

and concluded with the (Lima Declaration) for action for climate and a precise framework for the national contributions that each country must communicate about in the context of preparing for the Paris Agreement. President Abdel Fattah El-Sisi participated in this conference as head of the Egyptian delegation and delivered the speech of the Arab group at the climate conference held on the sidelines of the meeting.

Twenty-first: United Nations Climate Change Conference (COP21) in Paris, France, 2015

The Climate Conference was held in its twenty-first session, the Conference of the Parties (COP21), in (Paris) in 2015. The conference was attended by more than (36,000) participants, including (23,600) government officials, (9,400) delegates from United Nations bodies and agencies and civil society organizations, and (3,700) members of the media.

The work at the Paris Conference focused on advancing negotiations on the Paris outcomes, including a legally binding agreement, relevant decisions with the aim of fulfilling the tasks and commitments set in (Durban), in South Africa, at the seventeenth session of the Conference of the Parties . The Parties to the Climate Change Convention reached an agreement at their (21) meeting in Paris, described as “historic” to confront climate change, accelerate and intensify the necessary measures and investments, and for all countries to participate in making ambitious efforts to confront climate change and adapt to its effects, while enhancing support to help developing countries do so, and setting a new path in global climate efforts.()

Among the commitments that require activation are:

- (1) Commitment to limiting the rise in the average global temperature to less than two degrees Celsius, as well as continuing and following up on efforts to limit the temperature increase to (1.5 degrees Celsius.



(2) Develop national climate action plans by 2020, including climate action targets that countries set and commit themselves to achieving.

3: Establish a mechanism to review emissions every five years to ensure that the temperature target is being followed up.

Twenty-second: United Nations Climate Change Conference (COP22) in Marrakesh/Morocco 201

Under the slogan "Summit for the Future", the Climate Summit kicked off in Marrakesh, Morocco, in its twenty-second conference (COP22) for the period between (7-18 November 2016), with the participation of (thirty) heads of state, and thousands of delegates from international organizations. The aim of the conference was to establish a common ground for activating the Paris Agreement, and the conference called for a commitment to confront climate change, and the need to support efforts aimed at enhancing their capabilities to adapt.

Twenty-third: United Nations Climate Change Conference (COP23) in Bonn, Germany, 2017

The United Nations Climate Change Conference (COP23) was held between (6-17) November 2017 in the city of Bonn, Germany, with the attendance of about (196 delegations).

During the conference, progress was made on setting rules for how to practically implement the Paris

Agreement, and participants must develop a working guide during the conference that will be adopted at the next climate summit in 2018 in Poland. The Prime Minister of Fiji (Frank Bainimarama) had stressed and reiterated that: "The voices of the most affected parties must be heard." He added: "But together we must speak to the entire world that no one can ultimately turn a blind eye to the climate change that the world is witnessing

Twenty-fourth: United Nations Climate Change Conference (COP24) in Katowice, Poland, 2018:

The conference was held between (2-15 December 2018) in Katowice, Poland. The conference began with a speech by the Secretary-General of the United Nations to those gathered at the twenty-fourth conference, saying:

(Failure to reach an agreement on climate would be "suicide")

The conference was held with the participation of about (22 thousand people) from two hundred countries, and what is called the "Katowice Climate Package" was reached, which sets out the practical rules for implementing the historic "Paris Agreement" to confront climate change, signed in 2015, which will enter into force in 2020: The Katowice Climate Package sets out how countries will report on their commitments to reduce greenhouse gas emissions, monitor them, and update their emission reduction



plans. The guidelines cover a number of important issues, including how to provide financing to support developing countries to help them address climate change, and how to raise the ceiling on this financing by 2025 to exceed the current target (providing \$100 billion annually) starting in 2020, how to conduct a global stocktake to assess the effectiveness of climate action in 2023, and how to assess progress in developing and transferring technologies related to addressing climate change.

On December 3, 2018, the famous British naturalist, Sir David Attenborough, addressed the conference delegates with his famous phrase:

(We are now facing a man-made catastrophe on a global scale, the most serious threat to us in thousands of years: climate change. If we do not take action, the collapse of our civilizations and the extinction of much of the natural world looms.)

The Secretary-General of the United Nations, António Guterres, said:

“Time is running out, and wasting this opportunity would undermine our last best chance to stop uncontrolled climate change. It would not only be immoral, it would be suicidal.”

Twenty-fifth: United Nations Climate Change Conference (COP25) in Madrid/Spain in 2019

The twenty-fifth Conference of the Parties was held in (Madrid), the capital of Spain, during the period between (2-13 September 2019) under the slogan (The conference is a race we can win) and that it is the last before entering the year 2020, which is the decisive year in which countries that have pledged to reduce emissions causing global climate change must submit new climate action plans to achieve the three agreed climate goals, which are:

- (1) Reducing emissions by (45%) by 2030.
- (2) Achieving climate neutrality by 2050.
- (3) Stabilizing global temperature rise at (1.5 degrees Celsius) by the end of the century.

The main objectives that the conference sought to achieve are:

Maintaining the global effort to keep the global temperature rise to less than two degrees and limiting it to only (1.5 degrees) on average

Twenty-sixth: Conference of the Parties on Climate Change (COP26) in Glasgow/Britain in 2021 AD.

The conference was held between (October 31 - November 12, 2021 AD), and was co-chaired by the United Kingdom and Italy, after it was postponed for a year due to the "Covid-19" pandemic. Under the slogan (Together for our planet)



The Secretary-General of the United Nations, Antonio Guterres, stressed before the meeting:

"Without taking decisive action, we are betting on our last chance, and the conference was attended by (120) world leaders and (22,274 delegates), and more than (40,000) registered participants and (3,886) media representatives and (14,124) observer The conference participants sought to reach an agreement to maintain the goal of limiting the temperature rise above 1.5 degrees Celsius, the level that scientists say will “spare the Earth from the most devastating consequences of climate change.”.

The conference participants sought to reach an agreement to maintain the goal of limiting the temperature rise above (1.5 degrees Celsius), a level that scientists say will (spare the Earth the most devastating consequences of climate change, and it was agreed to discuss the status of four main points presented by the host country (the United Kingdom): -

- (1) Securing global net zero (zero carbon) by mid-century and maintaining (1.5) degrees Celsius and not exceeding it.
- (2) Adapting more to protect communities and natural habitats.
- (3) Mobilizing funding
- (4) Working together to achieve the goals

(5) The need to rely on science

In addition to the above, a number of side agreements were proposed and discussed, including:

- (1) Discussing an agreement submitted by the United States and the European Union to reduce methane gas, in which about (100 countries) promised to reduce methane emissions by (30%) from 2020 levels by 2030.
- (2) Discussing what was submitted by the United States and China, the two largest countries in the world, on the subject of carbon emissions, an agreement that reassured observers of Beijing's intention to accelerate its efforts to confront climate change after a long period of calm.

The European Commission considered that the "Glasgow Charter", which was adopted by (200 countries) at the COP26 conference, "kept the goals of the Paris Agreement alive, by giving us an opportunity to limit global warming to (1.5 degrees Celsius).

Twenty-seventh: The United Nations Climate Change Conference also known as ((COP27

The conference was held between (7-20 November 2022 AD) in Sharm El-Sheikh in the Arab Republic of Egypt, and the conference was attended by more than (92) heads of state, and an estimated (35,000) representatives or delegates from (190 countries). It was the fifth climate summit to be held in Africa, and

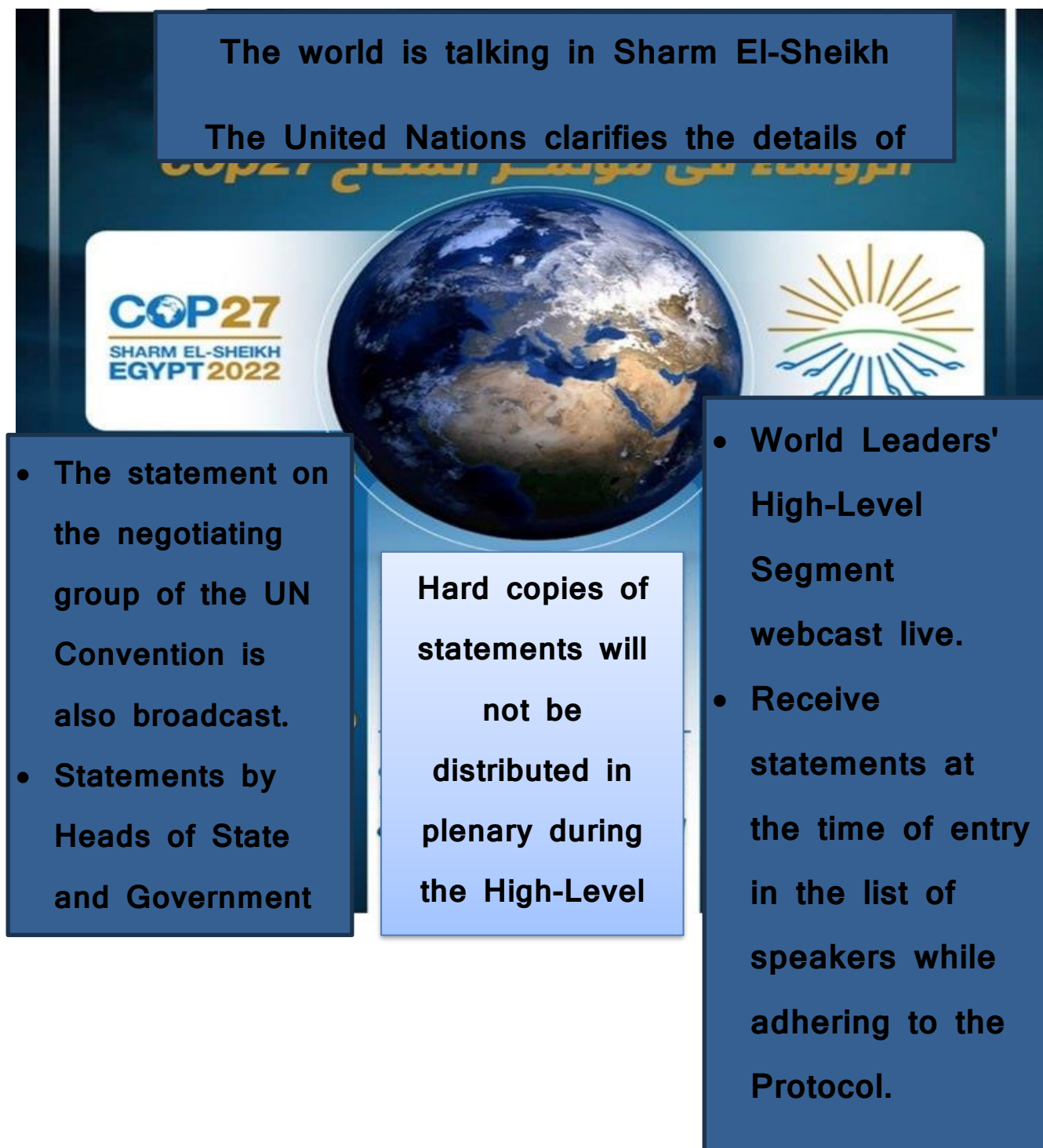


the first since 2016 AD. The slogan of the conference was: (Together towards implementation)

The slogan refers to the relationship between the concept of climate change and what the planet needs from this conference. The colors of the logo in the attached figure refer to the elements of the environment, as yellow symbolizes the sun and warmth, green represents plants, and blue represents water.



Figure (9):



The world is talking in Sharm El-Sheikh
The United Nations clarifies the details of

COP27
SHARM EL-SHEIKH
EGYPT 2022

- The statement on the negotiating group of the UN Convention is also broadcast.
- Statements by Heads of State and Government

Hard copies of statements will not be distributed in plenary during the High-Level

- World Leaders' High-Level Segment webcast live.
- Receive statements at the time of entry in the list of speakers while adhering to the Protocol.



The conference participants set a number of goals that they seek to achieve, especially those that were not achieved in previous conferences, including:

First: Mitigation: How countries work to reduce their emissions.

Second: Adaptation.

Third: Climate finance

Twenty-eighth: The twenty-eighth session of the Climate Change Conferenc for the year 2023 AD (COP28)

The conference was held in (United Arab Emirates / Dubai), and Sheikh (Mohammed bin Rashid Al Maktoum), Vice President and Prime Minister of the

UAE and Ruler of Dubai, congratulated his country on this occasion, and congratulated the UAE on winning the bid to host the most important global climate conference COP28 in 2023, and that "we will put all our capabilities to make the conference a success, and the UAE will remain committed to (global climate action to protect the planet Earth).

The UAE explained that it is able to host the conference (COP28) effectively and is able to provide solutions and alternatives that can reduce carbon emissions, and create what can contribute to sustainable development, and help rely on clean energy, and the UAE has a number of strategies and plans that support the green econo.



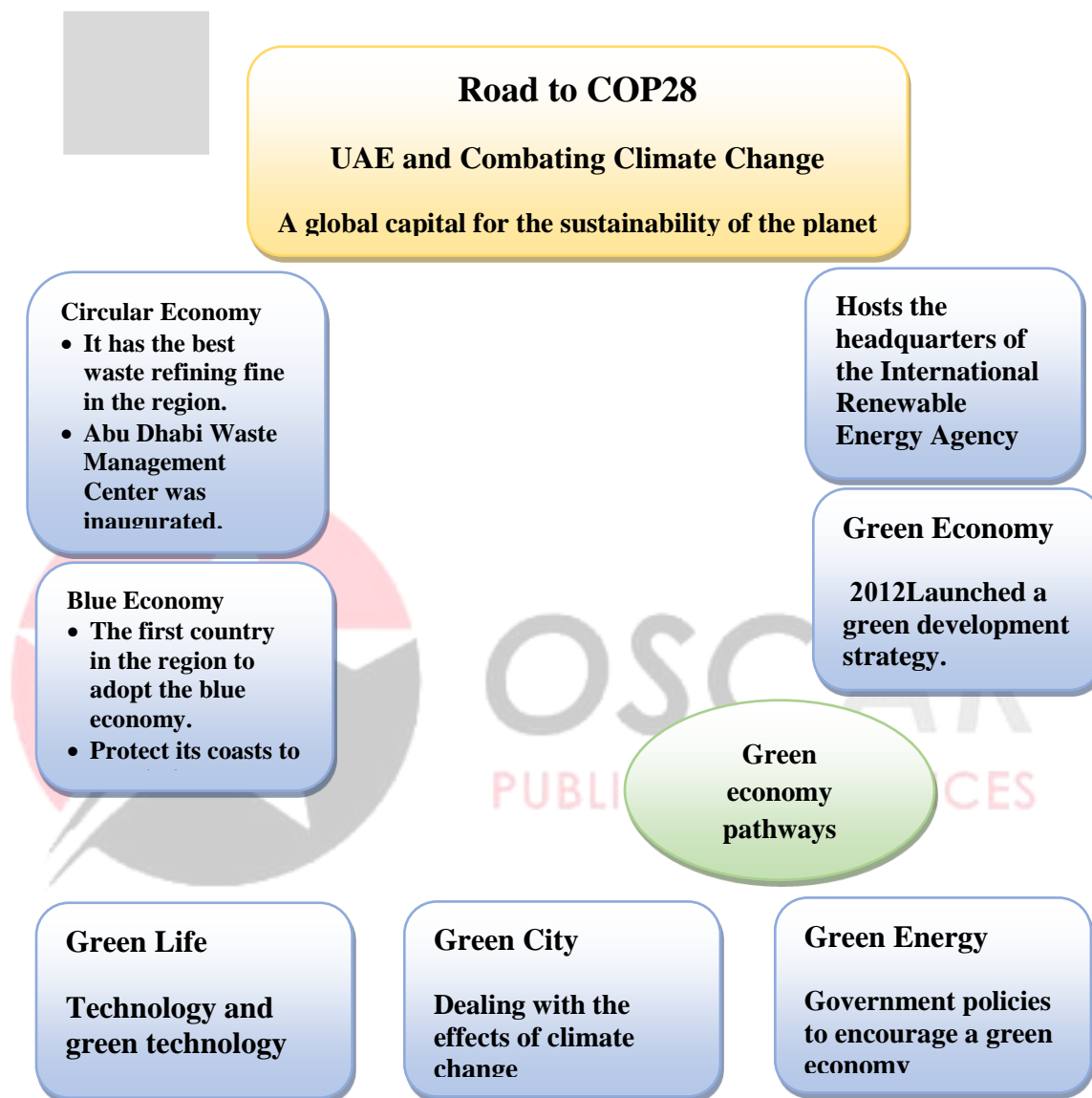


Figure (10) UAE and the fight against global climate change

(COP28) The United Nations Climate Change Conference signaled the beginning of the end of the fossil fuel era, and the participants from 200 countries acknowledged, for the first time, the need to transition

away from fossil fuels. Simon Steele, Executive Secretary of the United Nations Climate Change, said in his closing remarks: “Although we did not turn the page on the fossil fuel era in Dubai, this outcome is the



beginning of the end.” The Secretary-General of the United Nations (Antonio Guterres) stressed that the fossil fuel era must end with justice. He said in his statement on the conclusion of the conference.

“Developing countries must be supported every step of the way.”

“(To those who have opposed the explicit reference to phasing out fossil fuels in the COP28 draft, I want to say that phasing out is inevitable whether they like it or not. Let’s hope it’s not too late.) “The science is clear”

In his remarks, he stressed that the science is clear that limiting global warming to 1.5 degrees Celsius – a core goal set out in the Paris Agreement – “will be impossible without phasing out all fossil fuels”. This has been recognized by a growing and diverse coalition of countries.

Negotiators at COP28 also agreed on commitments to triple renewable energy capacity and double energy efficiency by 2030..

But the Secretary-General stressed the need to do more to achieve climate justice for people on the front lines of the climate crisis..

It is essential that we come together around real, practical and feasible climate solutions that are commensurate with the scale of the climate crisis.”

“A lifeline, not the end of the race” Here are some key highlights from COP28:..

- First: Establishing a Loss and Damage Fund designed to support developing countries vulnerable to climate change on the first day of the conference. Countries have pledged hundreds of millions of dollars to the fund so far.
- Second: Providing commitments worth \$3.5 billion to replenish the Green Climate Fund.
- Third: New announcements totaling more than \$150 million to the Least Developed Countries Fund and the Special Climate Change Fund.
- Fourth: Increasing World Bank financing for climate-related projects by \$9 billion annually between 2024 and 2025.
- Fifth: About 120 countries supported the UAE Declaration on Climate and Health at COP28 to accelerate action to protect people’s health from the increasing impacts of climate change.
- Sixth: More than 130 countries signed the UAE Declaration on Agriculture, Food and Climate to support food security while combating climate change.
- Seventh: (66) countries supported the global pledge to reduce expected emissions by 2050 from the cooling sector by (68%) as of today.

29: COP29 to be held in Bulgaria in 2024:



Azerbaijan was announced to host the 29th Conference of the Parties (COP29) - for the period from 11 to 22 November 2024 - after obtaining the support of Eastern European countries, and after Armenia withdrew from hosting the conference. Bulgaria had also announced its desire to host the 29th session of the Conference of the Parties. President Rumen Radev presented Bulgaria's candidacy to host the UN International Forum in 2024, and this happened at the Climate Change Conference in Egypt.

Thirty: The 30th session of the Conference of the Parties on Climate Change in 2030 (COP30) to be held in Brazil

It was agreed in 2022 in a statement issued at the twenty-seventh session of the Conference of the Parties, where the president-elect spoke that he would seek to have Brazil host the 30th session of the Conference of the Parties (COP30) in 2025, and the conference will be held in one of the Amazon states in the country (mostly in the northern region), and not the more densely populated coastal region, and this will be the first time that Brazil hosts the conference, which includes (60%) of the Amazon rainforest, which is the largest intact forest in the world, and on (January 11, 2023) President (Lula) and the Ministry of Foreign Affairs announced (Belem in the state of Pará) as the candidate host city from Brazil.

RESULTS

Our study of global climate change reached important results, most notably that climate change is a scientific fact, and that this provided the United Nations with a conviction, so it took it upon itself through its first meetings, which culminated in the establishment of the Intergovernmental Panel on Climate Change (IPCC), which was established in (1988), which adopted everything related to climate change and set the “Principles Governing the Work of the Intergovernmental Panel on Climate Change,” which stipulate that the Intergovernmental Panel on Climate Change will assess:

- (1) The risk of human-induced climate change.
- (2) The potential consequences of global warming.

The Intergovernmental Panel on Climate Change confirmed: (Climate change is not a concern for just one or two countries, it is an issue that affects all of humanity and every living being on this earth. This beautiful place is our only home, we must take serious action now to protect our home and find constructive solutions to the problem of climate change). The reports issued by the Intergovernmental Panel on Climate Change of the United Nations under the title (Climate Change Rings the Alarm Bell) confirmed that (climate change is an unambiguous reality that cannot be doubted scientifically). The United Nations also issued decisions on the necessity of holding international conferences known as the Conference of



the Parties (COP) and included all countries of the world, whether they are the cause of global climate change. Its meetings were held from the first Conference of the Parties (COP 1) until the second Conference of the Parties (COP 29), in addition to The Climate Change Convention defines it as: “a change of climate that is attributed directly or indirectly to human activity that has modified or is modifying the composition of the global atmosphere and that is in addition to the observed climate variability over comparable time periods” (Article 1-2), and climate action has become one of the direct goals of the United Nations.

Human activity is “unequivocally” warming the atmosphere, oceans and land, he said, adding that global warming is expected to remain at the 1.5°C limit set by the Paris Agreement over the next two decades, before being exceeded between 2030 and 2040 even if the world reduces carbon emissions. In numbers, the Intergovernmental Panel on Climate Change (IPCC) – which consists of a team of 1,300 independent scientific experts from around the world and operates under the auspices of the United Nations – has recorded a rise in temperatures of 1.5-2°C. The IPCC also confirms that each region has its own circumstances in terms of its vulnerability to climate change.

The study concluded that the current trajectory of global greenhouse gas emissions is the main cause of the increase in temperatures that the world has

witnessed and is witnessing, which has reached between (1.5 - 2 degrees Celsius). Therefore, the meetings of the international conferences of the parties have established and confirmed the necessity of adopting their decisions to mitigate the effects of pollutants that cause climate change, and that all countries, especially those that cause it, are committed to reducing those causes. Scientists from Australia and Germany presented a “unified model of the Earth’s climate” that the temperature should be less than (1.5 degrees Celsius).

It is expected that climate change in the world, especially in the Middle East, will reach losses ranging between 1.9-2.5% in the gross domestic product by the year 2100 AD, and a decline in agricultural productivity by 32% (FAO, 2005). Global climate change also indicates a change in weather characteristics, whether in thermal characteristics or decreasing rainfall, and the accompanying severe weather phenomena and recurrence of heat waves and dust phenomena. The effects extend to energy production and food security, which will directly affect human food life and economic development.

The Secretary-General of the United Nations, (António Guterres), stressed at the recent United Nations Climate Change Conference (COP26), that “the fragile regions of our planet are at risk of destruction. We are still approaching a climate catastrophe. It is time to declare a state of emergency - and our chances of



achieving net zero carbon emissions will be zero." The temperature is expected to rise by (3 degrees Celsius) by the years (2050-2100), and climate change will have the greatest impact in the dry and semi-arid regions located south and east of the Mediterranean, which suffer

First: Decrease in rainfall amounts, which will reduce the stored water quantities, which will affect the economic conditions that depend mainly on agriculture.

Second: As a result of the fluctuations in rainfall amounts, which fall in a short period of time, and the accompanying increase in surface runoff and soil erosion, and the decrease in the soil's ability to absorb water, thus causing a decrease in the quantities of agricultural crop production.

Iraq is the fifth country in the world affected by global climate change, and this is evident in the climate elements and accompanying phenomena that it has witnessed and is witnessing. Our dear country faces multiple and increasing challenges resulting from climate changes in climate elements and accompanying phenomena, with a rise in temperature that exceeds global rates, a significant decrease in the amount of rainfall, and a decrease in water revenues entering Iraq from neighboring countries, in addition to the increased frequency of long heat waves, the occurrence of fires, and the increased frequency and

duration of dust phenomena, in addition to the expansion of desertified lands, and the decrease in the number of wild animals or their extinction. Accordingly, Iraq is ranked fifth among the most fragile countries in the world environmentally in the face of climate change, and what it can reflect on ecosystems.

The decrease in annual water revenue reached less than (40 billion/m³) in the water year (2016-2017), and also reached less than (49 billion cubic meters) for the water year (2020); This means that these revenues have decreased to about half of their revenues from previous years, which were not less than (70.36, 68.8 billion/m³) during the years extending between (1980-1984). According to the above, as a result of the impact of global climate changes on Iraq's climate, it is necessary to take urgent measures and develop effective solutions to limit the impact of these changes, most notably at the international level, first: enacting laws that reduce those causes that raise the rates of polluting gases, and forcing the countries causing this problem to rely on the most effective scientific methods that contribute to reducing the problem of climate change and its environmental impacts

First: The recommendations of the United Nations through international conferences of the parties to confront climate change



The United Nations has sought and is seeking, whether through the meetings held at the first meeting in the Stockholm Conference in 1972, the second meeting held in Vienna in 1985, the United Nations Conference in 1988 on Climate Change, the Rio de Janeiro Conference, known as the (Earth Summit) in 1992 in Brazil, in addition to the recommendations issued by the United Nations conferences, known as the Conference of the Parties (COP) (Conference Of Parties), since the first Conference of the Parties (COP1) in (Berlin / Germany) concerned with climate change in 1995) until now, to issue multiple recommendations that oblige the countries included in these parties specialized in climate change first, and the countries of the world that did not participate in those conferences second, and the main countries causing emissions of climate change gases and the countries affected and most affected by global climate change third, this requires everyone to adhere to the following recommendation:

(1) The need to confront global warming by reducing the total cumulative global human carbon dioxide emissions, and the need to develop a plan for mitigation and adaptation to confront global climate change.

(2) The necessity of developing schedules to monitor the effects of climate change and address all its causes and the needs presented in the short and long term.

(3) Commitment to assisting financially affected countries to adapt to the phenomenon of climate change, investing in a range of alternative energy options, and establishing partnerships aimed at implementing mitigation operations for these climate impacts.

(4) The necessity of providing the latest scientific findings related to climate change and the measures they include in order to implement mitigation and adaptation operations on a wider scale, through the Intergovernmental Panel on Climate Change, the United Nations and other international organizations, including the available knowledge regarding the current and future impacts of the problem of climate change.

(5) Develop a vision for future development trends and find ways to link efforts being implemented to respond to climate change with development aspirations.

(6) Expand the scope of community participation and the efforts of representatives of the private sector, residential areas, especially poor ones, and local social organizations, along with public opinion leaders from various orientations, in order to ensure the implementation of broad-based opinion gathering processes and their adaptation to the climate changes that the world is witnessing.



(7) The necessity of encouraging the broad participation of non-governmental organizations in various fields related to climate through community awareness in ministries of education and in their curricula, starting from kindergarten and all educational stages, ending in institutes and universities, both governmental and private, and focusing on climate change and its effects and the role of every citizen in confronting those effects, whether through adaptation or what must be adopted to mitigate those effects.

Second: Special recommendations for Arab countries to confront climate change:

It is incumbent upon the Arab countries to adopt a number of measures to confront the effects of global climate change, including:

- 1: The necessity of activating efforts and cooperation between the political leaders of the Arab countries, not only at the ministerial level, but also at the level of the Secretaries-General in the Ministries of Energy, Environment and Water Resources, especially since the Conferences of the Parties will be held in a number of Arab countries and close to the decision-making centers to confront climate change.
- 2: It requires generalizing the international slogan that climate change is an indisputable scientific fact in all economic, social and political sectors at the level of the state and its institutions. This requires coordination

between all ministries in every Arab country in confronting climate change in all policies, strategies and projects.

3: The League of Arab States must have a role in holding periodic conferences similar to the international conferences of the parties and following up on their decisions regarding global climate change and the Arab countries' adoption and implementation of what is issued by them.

4: The problem of climate change should not be considered a secondary issue. In most Arab countries, climate change is considered a secondary issue, while the reality is the opposite, as it poses a threat to all elements and components of the environment, both natural and human

5: Adding legal texts and materials that deal with the causes of carbon dioxide emissions, and determining their percentages in the industrial projects sector, as this sector is one of the national income sectors and consumes about (33%) of the total energy.

6: There should be more cooperation between governments and civil society organizations in the field of environment, with better sharing of information and giving space for civil society organizations to be part of the decision-making process on issues and negotiations under the United Nations Framework Convention on Climate Change.



Third: Recommendations for Iraq to confront the impact of climate change:

Given the climate change that the world is witnessing, and the effects it has had and continues to have on Iraq's climate, and according to international statements, and as we have explained that (Iraq ranks fifth among the countries most affected by climate change in the world), because these changes have had an impact on climate elements, as we have explained, the temperature rates have recorded an increase from their rates, such that the increase in them has reached between (0.5-1.5 degrees Celsius) according to what is in the global warming index, and the amounts of rainfall have decreased, in addition to the increase in the frequency of drought waves and the frequency of dust phenomena (dust storms, suspended dust, and rising dust) in a way that Iraq's climate has not known before, in addition to the expansion of desertified areas, and the exit of more than (100 million acres) from agriculture, in addition to the decrease in water revenues from the Tigris and Euphrates rivers in a way that has affected and decreased the share of the Iraqi citizen in obtaining fresh water to less than half of what is specified for fresh water for humans globally, and what scientists and specialists expect in the increase in the effects of climate change and what will accompany it From economic, political and social problems, and according to what we have reached from studying international efforts and their decisions that emerged

from the international conferences of the parties (C.O.P).

According to the above, this requires the state to adopt and implement the decisions of the United Nations and international conferences of the parties first, and the necessity of enacting laws that oblige ministries, government institutions, private sector companies and citizens to stop everything that causes and increases the effects of climate change on the global and local levels second, including:

- (1) The necessity of reducing the levels of flaring associated gas from the extraction of petroleum and its derivatives and investing it in the extraction operations of oil and natural gas, and reducing emissions at the same time. In particular, improving the technology of flaring associated gas and monitoring methane emissions in oil and gas facilities for the purpose of repairing them (LDAR).
- (2) Changing the type of liquid fuel to gaseous fuel in power generation stations (gas), and improving the quality of the fuel used in a way that contributes to reducing carbon emissions.
- (3) Reducing emissions by adopting mechanisms to improve energy efficiency and rationalize its consumption.



(4) Converting heavy fuel power plants to use LPG and dry gas, which can be provided by capturing associated gas and reducing methane emissions.

(5) Directing towards the use of hydroelectric power, which is a clean energy source.

(6) Using carbon capture and storage (CCS) or carbon capture and storage (CCUS) technologies and using them to reduce carbon emissions and benefit from them in industrial processes.

(7) Localizing renewable energy technology, especially with regard to solar energy; due to Iraq's strategic location, which is a promising area for localizing this type of technology.

(8) Implementing integrated management to combat natural forest fires and rehabilitate burned and degraded forests, establishing a system to protect, maintain and increase the areas of natural and artificial forests, and establishing green belts; to reduce CO₂ emissions.

Iraq can play its role in reducing emissions that cause climate change and adapting to the climate change that the world is witnessing. To achieve this, the following requirements must be met:

(a) Iraq requires international financial support of up to \$100 billion according to the time frame indicated in this document, through grants and the localization of

sustainable investment in the public and private sectors.

(b) Supporting innovation and transferring environmentally friendly technology in line with its national needs.

(c) Supporting institutions and organizations active in the climate change file in a way that contributes to enabling them to develop climate measures that can be adopted to confront the impact of these current and future changes in our beloved Iraq.

Given that global climate change has had and will have an increasing impact on Iraq's climate on all elements and components of the environment, and to limit the impacts that have been explained, we propose a number of recommendations that can contribute with the global and Arab recommendations presented in this regard, including: First: Work to establish a Supreme Council for Climate Change headed by the Prime Minister and membership of the relevant ministers, and the Minister of State for Environmental Affairs will be the rapporteur of this council, in addition to establishing a committee for science and technology that includes in its membership an elite of scientists and specialists in the field of climate change and related aspects

Second: Work to establish a climate change institute that undertakes training cadres, creating institutional systems, coordinating between affected sectors, and



working to spread environmental awareness of climate change, with a focus on studying the potential for adaptation and rationalization of energy and water, and exchanging success stories at the level of various sectors and other Arab countries.

Third: Encouraging research, studies and technologies aimed at exploiting wind and solar energy in water desalination, rationalizing energy use and providing appropriate budgets for scientific research and implementation in these areas.

Fourth: Legislating laws that contribute to setting limits that define the role of human activities in increasing the emission of gases that cause climate change.

Fifth: Direct monitoring of the changes that will occur in climate elements, which is done by linking the available climate monitoring stations in the interior with the climate stations of neighboring countries first, and with the climate satellites Weather Satellite and the World Meteorological Organization (O.M.W.) second, to predict climate changes and their direct and indirect effects on environmental elements, primarily the Iraqi human being, and confirming Iraq's accession to the International Association (Bioclimatolog) which issues monthly and annual reports on the impact of climate on vital environmental aspects, primarily the human being.

Sixth: The necessity of organizing workshops in all Iraqi universities and in scientific departments related to the problem of climate change, especially geography departments, to discuss the main causes of this problem, and what measures can be adopted to reduce the potential impacts of climate change in the coming years and decades. This requires openness and work by our scientific institutions in the Ministry of Higher Education, the Ministry of Health, and the Ministry of Education, along with governments and international organizations, to establish links between climate change and health; to confront health problems related to climate change.

Seventh: Given that Iraq is affected by the decrease in water revenues and the exacerbation of the water problem and its repercussions on various activities, most notably agriculture, with the decrease in the Iraqi individual's share of fresh water, and the water crisis is one of the forms of climate change, in addition to the impact of the source countries and their water policies that contributed to increasing and exacerbating this problem, which requires presenting it in international forums, especially the International Conference of the Parties (COP28), which will be held soon.

Eighth: It requires the successive governments in power to work by all diplomatic means to convince Turkey, Syria and Iran to enter into new negotiations in order to sign a protocol, treaty or international covenant document to redefine the water rights of the



riparian states on the Tigris and Euphrates rivers in accordance with international law on this subject, such as the Helsinki Convention to regulate the division of international waters.

Ninth: The necessity of making genetic improvements in agriculture and livestock to develop breeds that have the ability to withstand and adapt to climate change, and to educate farmers about the dangers of climate change and its effects.

Tenth: Applying smart farming methods to confront climate change and increase environmental awareness about it in terms of climate, and improving nitrogen fertilizer use techniques to reduce N₂O emissions and encourage no-till agriculture to reduce emissions resulting from the use of agricultural machinery as it is a successful experiment.

Eleventh: Activating national policies, laws and legislation that urge citizens to rationalize water use, with the necessity of applying laws against those who waste water.

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