

The Threat of Global Warming to the Right to Health



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❖ **Introduction:**

The effects of weather, climate and global warming on human health are large and varied, as exposure to health risks related to climate change affects different people and different communities to different degrees, while often assessed individually, exposure to multiple threats to climate change can occur simultaneously multiplying cascading health impacts. With climate change, the frequency, intensity, duration and location of climatic phenomena such as high temperatures, heavy rains, droughts and some other types of extreme weather are changing, meaning that areas that are already suffering from health-threatening weather events such as extreme heat, hurricanes or storms are likely to face worse impacts and this also means that some locations will face new climate-related health threats.

Climate change is humanity's greatest health threat, and the world's health professionals are already tackling the health damage caused by this unfolding crisis. The Intergovernmental Panel on Climate Change (IPCC) has concluded that to avoid catastrophic health impacts and millions of deaths associated with climate change, the world must limit temperature rise to below 1.5°C. As a result of past emissions, a rise in global temperatures to a certain level and other changes in the climate are inevitable. However, global warming of even 1.5°C is not considered safe; It will cause serious damage to people's lives and health.

As temperatures are one of the elements of climate are very important by virtue of their clear impact on various human activities, clothing, food and housing, and there is a close relationship between temperature and climate elements, as they are the main engine of the rest of the other elements of climate, and at the same time affect and are affected by those elements. High temperatures affect health in many ways, including causing death and disease as a result of extreme heats, which are increasing frequently, and global warming has brought about irreversible changes. In the geological, biological and ecological systems of the Earth, where these changes have led to the emergence of large-scale environmental risks to human health such as extreme weather, increased risk of wildland fires, pressures on food-producing systems and the global spread of infectious diseases, in addition to that it is estimated that climate change causes more than 150,000 deaths annually.

Therefore, the report will clarify the extent of the impact of global warming on human health and life through several axes:

1. Definition of global warming,
2. Causes of global warming and the rise in global temperatures,

3. Impact of global warming on the right to human health, mental health, life, and mortality rates
4. International and Egyptian efforts to confront global warming,
5. Recommendations.

1) Definition of global warming:

It is the rise in the average surface temperature of the planet with the high level of carbon dioxide, methane and some other gases in the atmosphere. These gases are called greenhouse gases because they contribute to heating the earth's surface atmosphere.

The increase in the average climate temperature has been observed since the mid-twentieth century with its continued escalation, as the surface temperature of the globe has increased by 1.2 ° C since the beginning of the last century. Moreover, the International Committee has recognized that greenhouse gases resulting from human practices are responsible for most of the temperature rise recorded since the mid-twentieth century, while natural phenomena such as sunlight and volcanoes have an impact Small in greenhouse and cooling since before the Industrial Revolution until 1950.

Carbon dioxide and other greenhouse gases play a critical role in the phenomenon of global warming, as scientific studies indicate that they occur when the Earth's air environment receives sunlight that penetrates the atmosphere to enter the Earth, allowing two-thirds of the rays to enter through the atmosphere to the Earth, while the remaining third and surplus to the Earth's need bounce back into space for greenhouse gases to absorb it. Because these gases are unable to keep these rays forever, they return the bulk of them to the Earth, causing the Earth to warm, by preventing the excess rays from penetrating the Earth and returning to space.

According to the International Panel on Climate Change (IPCC), most of the increase in global temperatures since the mid-twentieth century appears to be largely the result of increased global warming (greenhouse gases) emitted by human activities.

Global warming therefore means the gradual increase in the temperature of the lowest layers of the atmosphere surrounding the Earth as a result of the increase in emissions of polluting gases (greenhouse gases) since the beginning of the Industrial Revolution.

2) Causes of global warming and the rise in global temperatures:

a. Natural reasons:

1. Climate changes:

Throughout human history, the Earth has witnessed many climate changes until scientists were able to justify most of them by natural causes such as some volcanic eruptions or solar fluctuations, as the Earth is considered to have a naturally fluctuating climate where it fluctuates between high and low temperature over time hundreds of years after the industrial revolution. The increasing rise in concentrations of greenhouse gases in the atmosphere, led to a rise in the average temperature of the earth above the normal range, which led to the transformation of this natural phenomenon to a negative problem, threatens the climate of the earth and therefore nature as a whole.

The causes of global warming are still surrounded by mystery, and therefore scientists are divided among themselves about the causes of this phenomenon. Some of them say that this phenomenon is completely natural and that the earth's climate is naturally witnessing hot and cold periods, citing an icy or cold period between the 17th and 18th centuries in Europe. Therefore, the earth is currently experiencing a small rise in temperature since the end of the short ice age that befell Europe and North America, as agrees.

Many geophysicists agree that the temperature of the earth's surface responds quickly to the effects of cosmic rays, these cosmic rumors are very small charges and invade various planets with different measurements according to the strength of the solar wind, and this may be the missing link in the impact of cosmic rays on the climate above our planet.

But the issue that worries scientists and shows us the extent of our ignorance of climate influences is how climate changes occur and how an ice age appeared or disappeared, although scientists formulated some theories to explain the great climate changes that passed on the globe, including the theory of climate change, which was formulated in the 19th century by the Frenchman Joseph Alphonse Anmar and the Scottish James Kroul and then reformulated at the beginning of the 2nd century, by Yugoslav Milutin Milankovic. When the previous winter's snow does not melt, it accumulates and thus reflects solar radiation, leading to a steady stretch that can reach the formation of a new ice mass. Although recent calculations have shown that there are many other factors, they have proven this theory in principle. Therefore, it comes to the changes in energy that the Earth receives from the sun at different latitudes over the seasons. Nevertheless, according to

Milankovitz, in the long run, three coefficients astronomically the one governs the changes of sunbathing

2. **The shape of the Earth's orbit measured by the deflection of the oblique:**

The Earth's orbit moves from an almost complete circular shape to a slightly flattened elliptical to return to the shape of the circle about 400.000 years and corresponds to this active role a semi-cyclical change of about 100.000. The orbit is not fully rotated, as the Earth is closer to the sun at some times of the year than at other times. Therefore, the Earth receives a slightly larger amount of the sun's energy when both the Earth and the sun are as close as possible (perigee) compared to the amount of energy when they are far apart. However, the shape of the Earth's orbit also changes in cycles of 90,000 to 100,000 years, there are times when it is more elliptical than it is now, and then the difference in solar radiation received at perihelion and apogee is greater. This helps to make the seasons in the northern hemisphere slightly less intense due to the effect of additional warmer in winter, while the seasons in the southern hemisphere are somewhat more intense than if the Earth's orbit was around the sun.

Circularly, and to clarify more, if the Earth, for example, begins its cycle around the sun from perigee, the same point of space will not be solved in relation to the sun when it is at a different time and place every year, and accordingly, perigee circumambulates around the sun once every 121,310 years. Moreover, the perigee day is displaced by one day accordingly compared to approximately every 58 years, and thus the ataxia and perigee explain some changes in the weather.

3. **The inclination of the Earth's axis between 22° and 25° is a major cyclic from about 410,000 years ago:**

If it were not for this inclination, there would be no seasons, and day and night would have been the same length throughout the year, and the amount of solar energy that reaches any location on Earth is constant throughout the year, but the Earth is tilted at an angle of 23.5 degrees.

When summer comes in the northern hemisphere, starting in June, the northern latitudes receive more sunlight compared to the southern hemisphere, and the day is longer and the angle of the sun is higher. At the same time, the southern hemisphere is in winter, where the day is shorter and the angle of the sun is lower. After half a year, the Earth moves to the other side of its orbit around the sun and remains tilted in the same direction, then the southern hemisphere becomes in the summer, when the day is longer and the sunlight is more direct, while winter has arrived in the northern

hemisphere. However, Milankovic believes in his theory that the inclination of the Earth's axis does not always remain 23.5 degrees; there are some According to his calculations, that tendency changes between 22.1 and 24.5 degrees within a cycle of about 41,000 years, when the slope decreases, summer becomes colder, winter milder, and when the tendency increases, the seasons become more severe.

How does this affect the climate as a whole? Although the winters may be milder, they remain cold enough for snow to fall in areas far from the equator, and when the summers are colder, it is possible that winter snow in latitudes far from the equator will not melt easily, and snow will accumulate year after year, forming glaciers. Snow reflects a greater amount of the sun's energy in space compared to water and land, which leads to more coldness, at which point Activating the role of a positive feedback mechanism where the drop in temperature leads may show how ice ages began.

4. Badari movement:

There is another complication where the orientation of the tilt of the Earth's axis changes over time and the axis moves in a circle, and this movement is called the pedal motion and occurs in a cycle of 22,000 years, and this leads to the seasons changing slowly throughout the year. 11,000 years ago, the northern hemisphere was tilted towards the sun in December, not in June, meaning that winter and summer were reversed and will change again after 11,000 years. Between two equinoxes, its axis of rotation is marked by a cone around the vertical direction on the plane of the orbit under these three factors: inclination, orbital shape and badari movement combine to manufacture climate change, according to climate change theorists.

b. Air pollution (atmospheric pollution):

Air pollution is a major problem facing all countries of the world, as many chemicals are emitted into the air from natural and manufactured sources, including emissions from natural sources and non-living sources such as plants, radioactive decay, tree fires, volcanic eruptions, and emissions from land and water. Humans have caused air pollution since they learned to use fire, but air pollution from human activities may increase rapidly since the beginning of the industrialization era.

1. Air pollution:

Man has long realized the danger caused by foreign substances released into the atmosphere due to a volcanic eruption or by an increase in the percentage of dust produced by plant pollen at certain times of the year. He has also realized since the use of fire the harmful effects it generates represented in the smoke it releases and the chemicals and non-chemical substances it carries.

The subject of air pollution has become a cause for concern since the beginning of the Industrial Revolution and the accompanying materials. Chemical, fumes, solid atoms and others released into the air, polluting it.

The issue of air pollution has given great attention by all countries of the world to the importance of air in the continuity of life, especially if we know that the lungs of each human body receive daily about 15 kilograms of atmospheric air, while the body absorbs only 2.5 kilograms of water and less than 1.5 kilograms of food.

2. Volcanoes:

Volcanoes can affect the climate because they can release smoke and CO₂ gas into the atmosphere, and volcanic fumes and gases tend to block sunlight and thus contribute to cooling the ocean near the volcano fumes do not produce long-term changes because they dissipate in the atmosphere after a short period of time. According to the US Geological Survey (USGS), the eruption of the Tambora volcano in Indonesia in 1815 has reduced the temperature by 5 Fahrenheit.

There are historical accounts in New England that the year 1815 was a year without summer, and some specialists in climate science believe that volcanic activity and the resulting addition of new pollutants to the atmosphere can result in a change in the composition of the atmosphere, which leads to changes in the terrestrial climate as volcanic eruptions are released with large amounts of gases and solids to the atmosphere so that fine solids can rise in the atmosphere to tens of kilometers to reach the upper atmosphere layer (stratosphere) affecting its composition and properties and may remain those volcanic materials of origin in the atmosphere for a long period of time sufficient to spread over large parts of the globe.

Therefore, volcanoes are a natural factor that can not be underestimated, as some studies indicate the atmosphere has approximately 1500 dormant volcanoes in the world. About 33% of these volcanoes have the peculiarities of violent eruption and lead to emissions of millions of tons of vapors and gases such as carbon dioxide. Hirschbeck, in 1980, conducted a detailed historical study of volcanic eruptions of world renowned using the geology of the ranks of volcanic eruptions and indicated the volcanic eruptions air that the gases released consisted of about 70% water vapor, 15% CO₂ and 5% nitrogen.

c. Unnatural human causes:

1. Economic:

Several factors make this problem difficult from both economic and political perspectives. A long-standing intergenerational problem unevenly distributes benefits and costs between and among countries. Scientific and public opinions need to be taken into account. Carbon dioxide is one of the most important greenhouse gases and about 20% of the carbon dioxide emitted by human activities can remain in the Earth's atmosphere for several thousand years. Long time scales and uncertainties associated with global warming have led locals to develop scenarios for future environmental, social, and economic changes that can help governments understand the potential consequences of their decisions. The effects of climate change include biodiversity loss, sea-level rise, increased frequency and intensity of some extreme weather events, and ocean acidification. Economists have tried to quantify these effects in monetary terms, but these assessments can be controversial.

2. Political:

One of the most interesting policy responses recently is climate system geoengineering, one of the answers to uncertainties caused by global warming. This strategy recognizes that decisions regarding the near term will have long-term implications, and governments may choose to use risk management to be part of their response to global warming. Analysts Evaluating Global Warming and its Relationship to Sustainable Development, Sustainable Development examines how future generations might be affected by the actions of the current generation. In some regions, policies designed to address global warming may contribute positively to other development goals, in areas where the cost of greenhouse policies may divert resources from socially and environmentally beneficial investments.

➤ **The most important greenhouse gases:**

With the beginning of the Industrial Revolution, around 1850, the concentration of atmospheric carbon dioxide began to rise. This rise was largely caused by the burning of fossil fuels that release carbon dioxide as a by-product, you may expect plants to benefit from the growth of carbon dioxide in the atmosphere, but in reality the rise in the level of carbon dioxide in the atmosphere can harm photosynthetic organisms more than help them.

Carbon dioxide and other gases in the atmosphere trap some of the planet's heat, this makes the Earth hotter, and this global warming may reduce precipitation on Earth, decertifying areas that may no longer be suitable for most plants. Carbon dioxide in the atmosphere also reacts with water,

producing acidic precipitation, which can lead to the death of plants. Scientists widely blame emissions of anthropogenic gases such as methane and carbon dioxide that trap heat within the atmosphere for climate change, and scientists estimate that the temperature on the planet rises between two and six degrees Celsius.

➤ **Greenhouse gases:**

Greenhouse gases have reasonable transparency for incoming solar radiation, but relatively opaque for thermal radiation with wavelengths longer than the surface of the earth. The higher the concentration of these gases in the air, the solar radiation received at ground level does not decrease significantly, while it decreases significantly. Thermal radiation has been lost from land and water surfaces to space, and the result is an excess of available energy at ground level and thus a rise in surface air temperature.

Among the most important greenhouse gases are the following:

a) **CO₂:**

This gas is produced from the combustion of garbage and the combustion of organic materials such as coal, petroleum or natural gas (fossil fuels). It also results from the respiration and decomposition of plants and animals and from the fermentation of sugary substances, whether chemical or biological.

Accordingly, it spreads in space abundantly, but the process of environmental equilibrium dissolves it in the waters of the seas and oceans, forming a weak acid known as carbonic acid H_2CO_3 , which in turn reacts with some sediments, forming bicarbonate and calcium carbonate, and plants also contribute to the use of a large part of carbon dioxide gas in photosynthesis. However, the deforestation and replacement of forests with cement forests has led to a loss of natural balance and consequently an increase in the proportion of dioxide. Carbon in the air.

This gas is non-toxic to biology, is found in a volume ratio equal to 0.032% in polluted dry air, and is the basis of the sustainability of food production on the surface of the earth as plants process photosynthesis and produce oxygen, which is the basis for the life of organisms, and organic matter, which represents plant production. However, scientists believe that the concentrations of this gas are in continuous increase, rates are very small, and this increase has no health impact on humans or on biology. Indeed, laboratory experiments have proven that increasing the proportions of this gas in the air would increase agricultural production. Nevertheless, the expected danger of this increase lies in the fact that its presence in the air in the general

atmosphere will reduce the spread of heat from the atmosphere of the globe to outer space, which will cause a rise in future temperatures on the surface of the earth.

b) CH₄ methane:

Combustion processes and bacterial analysis result in organic elements, especially at waste collection sites, whose concentration is increasing at an annual rate of about 1%. Its absorption rate of infrared radiation is 15%. A new scientific experiment has reported that methane gas emitted by cattle and sheep outweighs its greenhouse effect CO₂ emitted from heat sources, and cattle and sheep contribute to methane production by burping from the mouth or gas escaping from the intestine.

It is noteworthy that this experience came in the wake of numerous international protests against America for not signing the Kyoto Agreement, which provides for reducing the volume of gases emitted from industrial farms, of which America alone owns large areas.

When methane moves into the stratosphere, it decomposes into carbon and hydrogen, where carbon atoms combine with oxygen to form CO₂. Hydrogen combines with oxygen to form water vapor. Therefore, methane is thirty times more capable as a naturally occurring gas than CO₂, but fortunately, it is less concentrated in the atmosphere.

It is important to note that there are other gases in the atmosphere that have this susceptibility as well, including water vapor, nitrous oxide, and chlorofluorocarbons, and a new gas has been discovered that is one of the gases that cause global warming by Norwegian scientist William Strong. This gas is still mysterious, as chemists did not know all its conditions and they knew its composition from which its chemical formula came (trifluoromethyl sulfur pentafluoride).

3) Impact of global warming on the right to human health, mental health, life, and mortality rates

Today it is easy to predict temperatures, identify their negative effects, and thus take preventive measures to deal with high temperatures. If the ambient temperature is between 31 and 35 degrees Celsius and the relative humidity is above 50%, there is a high to very high risk of developing high temperature diseases. High temperatures cause many health effects that affect human health. Man acquires heat from the surrounding environment around him as well as internal body temperature that is produced due to metabolic processes in the human body. When temperatures rise in the human body, this leads to

several diseases, including: heat cramps, heat stress and heat stroke (a condition that causes fainting).

The human temperature rises when exposed to high temperatures internally and externally, and the human cools himself through sweating, but this is not enough. High temperatures may cause death either directly on the same day or over a longer term (after several days), especially in groups most vulnerable to diseases due to heat waves. On the other hand, high temperatures have indirect health effects. Human behavior changes as temperature rises and it is a catalyst for disease transmission and a change in air quality and quality. High heat waves cause many problems and social and economic burdens caused by rising temperatures.

The high temperature affects the health sector significantly as a result of the high demand for health services, which causes a deficit in the provision of health services to patients. High temperatures also cause an increase in demand for electricity and water and may reach in stages to power outages due to high demand for electricity. It causes problems in the agricultural environment, which individuals lose their crops due to high temperatures and the death of livestock, which leads to pressure on food security in the world due to lack of food resources.

Climate change and its impacts on public health is also one of the major challenges to achieving the 2030 Sustainable Development Goals. Due to the increased health risks that result from high temperatures and extreme weather events, such as cardiovascular diseases, respiratory diseases and heat stroke, in addition to direct injuries and deaths. Cities around the world have seen an increase in climate-sensitive diseases such as malaria, dengue, childhood diarrhea and pneumonia among vulnerable communities, and many studies suggest that the net current and future impacts of climate change on human society will be and will continue to be significantly negative.

The indirect effects of climate change include the spread of water, foodborne diseases and disease-carrying organisms, deteriorating water and food security, forced displacement and migration, and mental and occupational health imbalances. The indirect impact of climate change on human health extends to the decline of sustainable development and the exacerbation of poverty, which negatively affects human health and weakens the capacity of treatment and hospital services.

A range of environmental, social and economic factors, as well as the resilience of societies to disasters regulates the relationship between climate change and health. Environmental and social factors play an important role in influencing the health consequences of climate change. For example, children and women in developing countries are often at the forefront of the most affected groups during droughts, especially because of women's family role in fetching water. However, suicide rates among male farmers during periods of drought are higher than among women. In cases of emerging and human-to-animal diseases, such as Ebola, avian influenza, SARS, etc., declining biodiversity and changes in land use, ecosystems and animal habitats, which have increased as a result of climate change, bring humans into close contact with wildlife, increasing opportunities for vector interaction with humans. It also leads to the reduction of biodiversity and the spread of diseases, because the climate affects all living things, because it regulates the vital circle of plants and animals that affect their growth and vitality.

Climate change will cause severe health damage to humanity and the spread of infectious diseases, in addition to the possibility of the emergence of new diseases. Scientific studies have proven the relationship between climate change and the deterioration of human health, so scientific reports have confirmed that environmental pollution leads to an increase in rates of malaria, cholera, typhoid, intestinal diseases and cardiovascular diseases, in addition to diseases of the nervous and respiratory systems, fetal malformations, cancers and other malignant diseases.

The climate and environmental changes that have occurred over the past two decades, especially in recent years, have never been witnessed by the planet before, so the international community must be careful because the earth may reach rapidly destructive environmental and climatic conditions; global temperature rates continue to rise.

Arab countries have seen an increase in the number of deaths and people infected with communicable and non-communicable diseases related to climate change, especially among vulnerable populations such as children, the elderly, and outdoor workers, who are most exposed to polluted air, dust and high heat. The risk of death from natural causes-related environmental causes among the people of the region is expected to be 8 to 20 times higher between 2006 and 2010 than between 1951 and 2005.

A moderate and slight rise in temperature is enough to bring about a major shift in our planet. For example: eight degrees Fahrenheit may not seem like much, but for the world we live in it is a significant percentage that could lead

to climate change, if global emissions continue on their current path, this small rise will have serious consequences that are already clear to every ecosystem and living thing.

a) Global warming and the potential for human impact:

Thermal extremes, whether extreme cold or high heat, will lead to organic physiological disorders in humans and consequently disease or death. One of the confirmed outcomes of climate change is an increase in the rate of illness and heat-related mortality, mainly from stress-inducing heat waves, as excessive heat causes heat stress that increases the severity of the disease and mortality rates, as evidenced by the heat waves that hit the United States in 1980, 1983 and 1988, which killed (1700, 556 and 454) people respectively. The age group of the elderly and young people is the most affected by weather extremes, due to the poor physiological ability to overcome the health problems caused by these extremes.

It is worth noting that the physiological adaptation to heat stress conditions may appear in several days, but full adaptation to unfamiliar hot environment conditions can take several years. Several studies have shown that heat-related mortality is also affected by many climatic elements such as relative humidity and wind speed, as the combined effect of heat, relative humidity, and wind speed shows what is known as apparent heat that is realized through the senses of the human body. In general, healthy people have effective thermoregulation mechanisms that protect them from the increase in apparent heat. In order to do this, heat must be lost from the body either by radiation or convection or through the latent heat used to evaporate water from the human body by sweating or expansion of blood vessels.

In general, there is a clear and specific thermal threshold in most of the human populations studied by the World Climate Organization, which indicates the existence of a critical thermal limit to withstand heat stress, which varies according to the geographical widths in which any area is located. Any increase above this limit, the mechanisms of physiological overcoming of excess heat ineffective, as the thermal threshold for any site depends on the average local temperature and the frequency of extreme temperatures.

It can also be noted that the thermal thresholds are less clear in the mortality data for thermal regions, including Iraq, which is located between latitudes (29.5 – 37.22) north. Of course, it can be said that the volume of heat-related deaths varies depending on these geographical factors, as the data indicate a high heat-related mortality rate for regions with a temperate climate, unlike

the inhabitants of tropical regions, which are less affected by thermal extremes. This is evident through the temperatures recorded in some climatic stations in Iraq, which amounted to (50) C. However, their impact cannot be attributed to the large difference in temperatures that occur due to climate change and the natural rates that characterize moderate presentations, unlike tropical regions, which are characterized by the fact that hot periods do not usually significantly exceed the average temperature of the period in which they appear, which makes the environmental adaptation process for tropical populations better for large thermal extremes than temperate regions.

b) Mortality and morbidity rates associated with heat waves:

Heat waves can directly lead to death by causing heat-induced illnesses and by exacerbating heat-susceptible conditions. Additional risk factors associated with heat-related deaths are emerging from increased pressures on water and electrical systems, risky behavioral responses and deteriorating environmental conditions, particularly air quality.

The risk of heatwave-related diseases, such as mortality, can be increased either through diseases caused directly by heat or by exacerbating conditions. Both conditions may require primary health care or follow-up hospitalization, with some of these diseases potentially killing those affected. While the majority of heatwave-related deaths are often documented as so, in some cases heat-induced diseases may not be monitored or reported in low- or middle-income countries.

This necessitates the use of indirect primary data when developing public health plans. Heat waves increase the risk of excessive body temperature, which results in significant risks to health and may lead to death, and symptoms of this condition include heat exhaustion, convulsions and heat stress. Stress caused by extreme weather conditions is often associated with myocardial infarction, sudden cardiac death and cardiomyopathy. People with pre-existing conditions such as respiratory and cardiovascular diseases are more prone to convulsions and fainting caused by heat, heat exhaustion and heat stress as a result of high temperatures.

The American Heart Association has warned of the dangerous impact of high temperatures, and the potential for damage to the heart. The association pointed out that the high temperature and the dehydration that may result from it, forces the heart to work harder to cool itself by pumping more blood, and converting it from the main organs to the subcutaneous. The association pointed out that the risk of high fever is higher in the elderly and people with high blood pressure, obesity, or a history of heart or stroke. The association

pointed out that the fluctuation of summer temperatures in a number of countries increases the risk of stroke.

If a person is over the age of fifty or overweight, it is very important to take special precautions at high temperatures to protect their health, as certain medications such as angiotensin receptor blockers, ACE inhibitors, calcium channel blockers, and diuretics, which affect blood pressure responses or deplete the body of sodium, can increase the body's response to heat, thus putting the heart at risk.

More than 600 people die each year in the United States from extreme heat, according to the American Heart Association. There are several types of heat affecting the body. For example, heat exhaustion can lead to dizziness, headaches, tremors, thirst, and it can affect anyone, and it is usually not dangerous if a person's body cools within 30 minutes. Heat stroke, which occurs when the core body temperature is above 40.6 degrees Celsius, is a medical emergency that can lead to long-term organ damage and death. Symptoms of heat stroke include rapid breathing, confusion, or cramps, and nausea.

Heat can also lead to low birth weight and premature birth for pregnant women and children. Suicide rates and mental health problems are often high during heat waves. Some people are more vulnerable to higher temperatures, including:

- Young children and the elderly.
- Athletes.
- Displaced persons.
- People with respiratory diseases, cardiovascular diseases, and diabetes.

The World Meteorological Society has also warned that air pollution also increases during heat waves, and adverse health effects follow. Researchers estimate that less than half a million deaths a year are caused by excessive heat. Experts say most deaths occur at the beginning of the summer, because people's bodies have not yet had the opportunity to cope. People are also at greater risk in places where they are not used to such heat, including parts of Europe.

c) Effects of high temperature on mental health:

Climatic extremes have direct effects on human health and comfort, represented by the psychological effects associated with certain weather conditions. For example, in depression and laziness, in which many people feel when an uncomfortable atmosphere prevails represented by the combination of high temperature and humidity, while a person feels

comfortable in the shadow of a clear sky, a bright sun, a light breeze and a mild atmosphere that tends to be colder than warm.

It is clear that societies respond in different ways to climate extremes, and this naturally depends on the cultural, economic and social level of those societies. There are many factors that estimate the extent and duration of psychiatric symptoms that follow disasters caused by climate extremes, including the nature of the experience, the age of the individuals exposed to them, the structure of the community affected by them, and the availability of psychological care.

The results of some studies in one of the developed countries showed that (37%) of the children studied between the ages of (2-15) years suffer from mental disorders, while all the people included in the study showed major depression in (19.3%) and general disorder and anxiety (17.6%)⁽¹²⁾, due to climatic phenomena represented by high temperature, which represents a direct reflection of climate changes. These results also indicated that long-term psychological effects might persist as a problem for many years after the occurrence of the climate disaster, which requires serious work to reduce the possibility of exacerbating climate changes that can affect the emergence of environmental disasters represented by global warming and the resulting dangerous environmental effects that threaten human life and future.

➤ **Factors of the impact of global warming on health:**

The cause of heat gain in the human body can be a **combination of external heat from the environment and internal body heat** resulting from metabolic processes. Rapid rise in heat gain due to exposure to hotter-than-average conditions impairs the body's ability to regulate temperature and can lead to a series of diseases, including heat cramps, heat stress, heat stroke, and hyperthermia.

Deaths, recovery from heat stroke or illness due to **heat can occur very quickly** (on the same day), or have a delayed effect (after several days and accelerate death and illness in people most at risk, particularly in the early days of heat waves. Even minor differences from average seasonal temperatures are associated with increased morbidity and death. Extreme temperatures can exacerbate chronic conditions, including cardiovascular disease Hematological, respiratory, brain, blood vessels and conditions associated with diabetes.

Heat also has important indirect health effects, and temperature conditions can change human behavior, contribute to disease transmission, and affect the delivery of health services, air quality, and vital social infrastructure such as energy, transport, and water. The magnitude and nature of the health effects of heat also depend on the timing, intensity and duration of temperature, the level of adaptation to it, and the ability of local populations, infrastructure and institutions to adapt to the prevailing climate. Hazardous by region, and other factors such as humidity and wind, local levels of human adaptation and preparedness for temperature conditions.

4) **International and Egyptian efforts to confront global warming.**

➤ **International efforts:**

The **World Climate Conference**, in 1979, indicated that the effects of climate change on the global and regional systems would begin to appear at the end of the 20th century and their impact would increase before the middle of the 21st century. Therefore, international efforts to take the necessary measures for climate change have increased through the conclusion of relevant agreements, and attention has increased to extreme degrees that the United Nations General Assembly discussed the subject of climate change in the United Nations General Assembly in 1988. It decided to form the Intergovernmental Panel on Climate Change (IPCC).

This group was formed in cooperation with the Meteorological Organization (WMO) and the United Nations Program (UNEP) to carry out scientific research and evaluate information on climate change in scientific, technical, economic and social terms, and was established in 1990, noted that technically feasible and cost-effective measures exist to reduce carbon dioxide emissions through national and regional action.

At its 44th session, **the United Nations** reached an international consensus on the need to elaborate a framework convention on climate change that would provide for specific commitments as a matter of urgency to address changes in the natural or biological environment caused by climate change that have significant adverse effects on the composition or resilience of the productivity of natural ecosystems, on the functioning of social and economic systems, on human health and well-being, or on confronting global warming.

The **United Nations Framework Convention on Climate Change** was prepared in May 1992 to be signed by the countries participating in the United Nations Conference on Environment and Development (Earth Summit), which was held in Rabbo de Janeiro from 3 to 14 June 1992, and with the celebration of the international community 20 years since the first World

Conference on the Human Environment, which was held in Stockholm in 1972. The Earth Summit was attended by 120 heads of state, 178 government representatives, more than 10,000 government and international employees, in addition to large numbers of representatives of the press and media, scientists, businessmen, and non-governmental organizations, coming from 167 countries, and the roles of international organizations to confront global warming are the following:-

a. United Nations Industrial Development Organization (UNIDO):

The work of the United Nations Industrial Development Organization began in 1996 in cooperation with the organs of the United Nations Framework Convention on Climate Change as an international agency specialized in industrial development affairs because of its awareness of the importance of the Convention on Climate Change. Cooperation between both of them is carried out by encouraging sustainable industrial development and monitoring carbon dioxide emissions resulting from industrial projects, and trying to use modern technologies to reduce those emissions harmful to the environment.

That organization also participates in the United Nations Environment Program (UNEP) to access clean technology, as well as to provide measures to reduce industrial pollution and to provide studies on development and the clean development mechanism in order to preserve the environment.

There is also **cooperation between the United Nations Industrial Development Organization and the World Trade Organization** in overcoming the difficulties facing the application of the Monterrey Protocol on Substances that Deplete the Ozone Layer in 1983, as this protocol stipulated that the level of consumption and production of ozone-depleting substances should not exceed a certain limit.

All alternatives to CFCs have been included in a specific list, requiring annual reports on their production and consumption and strict guidelines for their use, in addition to a commitment to phase them out within a specified period, and these substances are considered less ozone depleting, but they are producers of chemicals that must be eliminated during the period 2020-2040.

b. Organization for Economic Co-operation and Development (OECD):

This organization includes industrialized countries responsible for the largest emissions in the world and requires the application of the principles of justice, the establishment of obligations, and the arrangement of responsibilities on these countries towards preserving the environment and reducing heat emissions. **These countries are represented** in the United States of America,

Japan, Canada, Australia, Belgium, the Netherlands, the United Kingdom, Germany, Denmark, and Switzerland.

The United States of America is one of the largest polluters in the world, despite the large coastline, which can be affected by climatic conditions caused by global warming. Among the measures taken by this organization to reduce global warming is the tax initiative to protect the environment in the United Kingdom, as it announced in 1999 several tax reforms to protect the environment and reduce greenhouse gas emissions.

Countries are moving towards agricultural support, with OIC countries spending about 335 million US dollars annually to support agricultural production, so countries are working to increase green spaces that consume greenhouse gases.

c. The European Union countries:

The emissions of the European Union countries constitute 7.8% of the world's emissions, which is not a small percentage, so most European Union countries encourage policies that reduce greenhouse gas emissions; these countries sought to develop technology, move towards renewable energy sources and rely on them in order to preserve the environment, and expand vegetation cover.

d. Countries with a transition economy:

Countries with a transition economy are defined as countries that have emerged from the mantle of developing countries to go through a transition phase towards progress, as the economy of these countries cannot be classified as developing countries or developed economies. These economies are going through a transition period, so they do not have the full capacity to direct climate change issues, and need assistance in forming their capabilities to ensure that they fulfill their obligations under the Framework Convention on Climate Change and its Kyoto Protocol.

e. Organization of Petroleum Exporting Countries (OPEC):

The Organization (OPEC) was established in 1960 from a group of major oil-producing countries with the aim of unifying the petroleum policies of member countries, and providing the best ways to preserve their interests collectively and individually.

Petroleum production has affected the economies of Arab countries (the Gulf), and in light of the divisions suffered by OPEC, the industrialized countries are still exerting pressure on the oil-producing countries to obtain it at the cheapest prices. At the same time, work is being done to obtain clean renewable energy in order to preserve the environment, thus enabling countries to implement the Kyoto Protocol, which obliges parties to reduce

emissions at the national level by increasing forests and green spaces consuming carbon dioxide, without prejudice to the development process and mechanisms for developing energy technology to shift to renewable types of energy.

Studies have confirmed that OPEC's production capacity will not be enough to meet global energy needs, especially by 2040, and with international efforts to preserve the environment from the threat of pollution and global warming. Moreover, the Kyoto Protocol called on States parties to the Protocol to impose taxes on carbon consumption, discourage environmentally harmful industries, and cut financial support for any projects harmful to the environment.

f. World Trade Organization:

The World Trade Organization (WTO) works to regulate trade between countries, the activity of this organization began in 1995 to replace the Global (GATT), which was dependent on regional blocs, especially the United States of America, Japan and the European Union, and the World Trade Organization has become the only framework for the implementation of multilateral international agreements.

The Committee Trade Environment (C.T.A), a WTO committee to discuss trade problems and their impact on the environment, was established in an effort to reconcile conflicting business interests with environmental protection

g. Stockholm Conference on the Human Environment in 1972:

The United Nations Conference on the Human Environment was held in 1972 in Stockholm, the aim of this conference was to stop environmental degradation, and this conference issued an important document that included several principles and guidelines that countries must follow to stop environmental degradation and its dire effects;

h. The 1982 Nairobi Conference:

The United Nations Environment Conference was held in 1982 in Nairobi and established the foundations and specific principles for the relationship between humans and the environment. One of these principles is that it clearly expressed the degradation and climate change caused to the environment. In addition to that, the conference clarified what is committed by humanity through damage to the environment, water and desertification, and the damage caused to the environment due to climate change, the ozone hole, increasing the concentration of greenhouse gases such as carbon dioxide, acid rain, pollution of the seas, and internal water and the use of materials. Dangerous and extinction of species of plants and animals and threats to humanity.

i. World Charter for Nature in 1982:

In 1982, the United Nations General Assembly issued the World Charter for Nature, which included the basic principles of the protection of nature, its balance and the preservation of its natural resources for the benefit of present and future generations through appropriate measures at the international and national levels to protect nature and support international cooperation.

j. United Nations Conference on Environment and Development 1992:

The United Nations Conference on Environment and Development was held in Brazil in 1992, which issued the Declaration of the Earth Summit (Asthma Declaration) and Agenda 21, the principles of forest protection, the principles of atmospheric protection, technology transfer, the United Nations Framework Convention on Climate Change, and the Convention on Biological Diversity.

k. United Nations Framework Convention on Climate Change (UNCCC):

The signing of this Convention at the United Nations Conference on Environment and Development in 1992, and this Convention aims to alert humanity with the risks of climate change and rising temperatures.

It also sets a system to control the emission of greenhouse gases into the atmosphere at a level without prejudice to the global climate system, which was the level that prevailed in 1990. The Convention set 2000 as the deadline to reach this level.

l. Agenda for the Twenty-first Century:

A document includes a detailed plan related to combating poverty, preserving human beings, their health and their environment, as well as preserving freshwater resources and urging governments to achieve sustainable development.

m. Declaration of the Earth Summit (Rio Declaration) on Environment and Development of 1992:

An optional document contains principles that express the rights and responsibilities of states in the field of development and the welfare of people. Among those principles are the right of human beings to live in a clean, productive environment in harmony with nature, that the development requirements of current generations should not harm or reduce the requirements and needs of the environment and development for future generations, and the right of states to exploit their natural resources provided that they do not harm the environment beyond their territorial borders. The Declaration recognized the close relationship between economic progress and the protection of Environment.

n. Declaration of Principles on Forests:

It is a document for forest management and conservation, as forests contribute to achieving ecological balance, and absorb gases emitted by human activities that cause global warming and climate change.

o. United Nations Convention on Biological Diversity:

This agreement aims for countries to prepare the necessary models for the conservation of biodiversity, taking into account that the benefits stemming from biodiversity are fairly protected. Developed countries have an obligation to preserve biodiversity and sustainable development of it, while developing countries are concerned with the third objective of this agreement, which is the equitable sharing of the benefits that can be obtained from vital resources.

p. Paris Climate Agreement:

The Paris Climate Agreement, which was signed by 194 countries, including Egypt, is one of the important agreements, calling for a set of measures and decisions related to the climate. Most notably, the pledge of the international community to limit the rise in the earth's temperature and keep it below two degrees Celsius, compared to the pre-industrial era, pursue efforts to stop the rise in temperature at 1.5 degrees Celsius, seek to reduce greenhouse gas emissions, take measures to reduce energy consumption, invest in alternative energies, reforest forestry, and seek to develop a mechanism to review all 5 years of national pledges.

q. Climate Conference 2021:

The COP26 culminated in the Glasgow Climate Charter, which came five years after the signing of the Paris Agreement and which kept the goal of limiting global warming to 1.5°C alive, but with a "weak pulse", as the UK presidency announced at the time. Progress has been made to make the Paris Agreement operational, by finalizing the details of its practical implementation, also known as the "Paris Rulebook."

At COP26, countries agreed to make stronger commitments that year, including updated national plans with more ambitious targets, but only 23 of the 193 countries have submitted their plans to the UN so far.

It was agreed to:

1. Recognition of the state of emergency:

Countries reaffirmed the Paris Agreement's goal of limiting the increase in global average temperature to well below 2°C above pre-industrial levels and continuing efforts to limit it to 1.5°C. They went further, expressing "the state of exhaustion and grave concern that human activities have caused a temperature rise of about 1.1°C so far, that the effects are already being felt in every region, and that carbon budgets consistent with the Paris Agreement

temperature target are now small and rapidly being exhausted." They realized that climate change impacts would be much lower when the temperature increased by 1.5°C compared to 2°C.

2. Speed up work:

Countries stressed the urgency of action "in this critical decade", where carbon dioxide emissions must be reduced by 45 percent to reach net zero in about mid-century. However, with current climate plans – NDCs – failing to achieve ambition, the Glasgow Climate Charter calls on all countries to submit stronger national action plans next year, instead of 2025, the original timetable. Countries also called on the UNFCCC to prepare an annual aggregate report of NDCs to measure the current level of ambition..

3. Stay away from fossil fuels:

In the most controversial decision in Glasgow, countries eventually agreed to a clause calling for the phase-out of coal power and the phasing out of "inefficient" fossil fuel subsidies – two key issues that have not been explicitly mentioned in resolutions at UN climate talks before, even though coal, oil and gas are the main drivers of global warming. Many States and NGOs expressed dissatisfaction with the weakness of the language in relation to coal (from phase-out to phase-out) and were therefore not as ambitious as required.

4. Complete the Paris Rules List:

States reached agreement on the remaining issues of the so-called Paris Regulation, and the operational details of the practical implementation of the Paris Agreement. Among them are rules on carbon markets, which will allow countries struggling to meet their emissions targets to buy emissions reductions from other countries that have already exceeded their targets. Negotiations on the enhanced transparency framework, which provides common timeframes and agreed formats for states to report regularly on progress, designed to build confidence and confidence that all countries are contributing their share to the global effort, were also concluded.

All global attempts to limit global warming remain without effective resonance on the ground, and fruitless in the hoped-for way, unless actual steps are taken and theoretical recommendations are applied to reduce greenhouse gas emissions and limit global warming.

➤ **Egyptian efforts:**

Egypt sensed the dangers of climate change during the 2016 Paris climate summit, when President Abdel Fattah al-Sisi pointed to the dangers of increasing the earth's temperature by more than one and a half degrees Celsius, calling for a fair and clear agreement regarding climate preservation and the

need to reach an international agreement that guarantees the achievement of a global goal that reduces harmful emissions.

Egypt called on the international community to support its efforts in its ambitious contributions to confront climate change, focus on developing countries with regard to climate change, and provide 100 billion dollars a year to tackle climate change by 2020 and double it thereafter.

The president warned of the impact of climate change at the local level. The president was interested during the Youth Conference in Sharm El-Sheikh in the future of climate change in the world and its impact on Egypt, during which the Minister of Environment presented the projects that have been completed since the President's speech during the Paris Climate Summit, including a project to replace old means of transportation with modern ones powered by natural gas, energy rationalization, most notably the use of gas in old buses and taxis instead of gasoline, and the revision of the environmental law to introduce climate change, and announced that the user is from sources The energy required for electricity from new and renewable energy is within 5% and will rise to 42% by 2035. The road projects, the new administrative capital, the 1.5 million feddans project, and many other projects are working to protect the coasts of the Delta from the effects of climate change, all within the framework of protecting Egypt from climate change.

Egypt is taking a number of ways to mitigate the risks of climate change, such as:

- The start of the use of solar energy in agriculture, industry and electricity,
- The use of wind energy, as an alternative to fossil fuels, which is abundant and renewable energy,
- Change irrigation systems in two ways, sprinkler or drip,
- Start working on using electric cars, which operate with hydrogen energy and work using electrical energy,
- encourage green architecture, which is environmentally friendly architecture and uses building factors of stones that do not harm the environment, and it is a good model in Reducing gas emissions,
- Reducing the uses of air conditioning and lighting,
- Rationalizing electricity consumption.

The Ministry of Agriculture has begun implementing a pilot project to adapt to climate impacts in the agricultural sector, distributing drought-tolerant seeds for agriculture, drought-tolerant goats and more milk being given.

❖ **Conclusion:**

At a time when the international community is laying the foundations for the sustainable development agenda, there is ample evidence of changing terrestrial systems that push us towards troubling prospects. Environmental degradation, the widespread spread of human-induced changes, combined with natural processes, and the loss of ecosystem services are obstacles to the achievement of the internationally agreed development goals.

The nature of the processes involved in climate change needs no more factual evidence than much of the planet's population feels. Until very recently, the impact of human societies on the environment tended to be very limited and objective. However, the chemical pollutants released by human activities on air and water have taken a large space, and the changes in the lower and middle layers of the atmosphere have widened, making them acquire the character of universality because its effects on human health. Moreover, it has also made it take the character of global and general, and has become a wide range and for a longer period on the scale of time.

The growing awareness of climate change professionals has stimulated attempts to estimate climate change and their impact on human health through the relationship between climate and human health. Climate change in the past has not been given enough attention by environmental health scientists as environmental pollution and agricultural soil degradation have received attention. It is worth noting that effective solutions can be made gradually because the global climate changes that are occurring now have familiar ancient origins and their development has kept pace with the measure of human economic activity that stimulated these changes. Therefore, they need similar agreed action in order to find effective solutions to these changes represented by environmental rebalancing. By reviewing the amount of polluting gases released, taking into account the political and social response options for such legislation.

❖ **Recommendations:**

1. Urging all countries of the world to cooperate to reduce global warming, and to join and ratify international and regional agreements aimed at protecting the environment.

2. Appealing to the countries of the world to resort to sustainable development and clean energy, in order to preserve the environment.
3. All countries of the world must enact strict legislation to preserve the environment, impose the maximum penalties on those who cause environmental pollution, and activate the role of the media, school curricula and all state institutions to raise environmental awareness.
4. Establish a special body for the United Nations Climate Change Convention to consider violations of global warming by countries.
5. Individuals to protect the body from the damage of high temperatures **should follow these tips:**
 - Staying hydrated is key; it is easy to get dehydrated even if you do not think you are thirsty, drink water before, during and after going out in hot weather.
 - Do not go out when the sun is at its strongest, i.e. between 12 noon and 3 p.m.
 - Wear lightweight, light-colored clothing from breathable fabrics such as cotton or sweat-repelling fabric.
 - Drink a few glasses of water before, during and after going out or exercising, and avoid caffeinated or alcohol-containing beverages
 - Wear a hat and sunglasses, and put on waterproof sunscreen before leaving the house.
 - Take regular breaks while exercising.
 - Continue to take all medications as prescribed by the specialist.
 - Avoid hot and heavy meals as they help overheat the body.
 - Stay away from sugary drinks because they cause the loss of more body fluids.