

Chapter Five

GLOBAL WARMING, GLOBAL CLIMATE CHANGE AND ITS IMPACTS ON HUMAN HEALTH

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Executive Summary

This article aims to present the impacts of global warming and the consequent global climate change on human health and the solutions to avoid its harmful consequences against humanity.

Keywords: Global warming; Global climate change; Sustainable development; Human health.

Introduction

This article aims to present the impacts of global warming and the consequent global climate change on human health and the solutions to avoid its harmful consequences against humanity. In order to achieve this goal, it is necessary to promote a profound transformation of current society, which has been extremely destructive of the planet's living conditions. Therefore, it is essential to build a sustainable society, replacing the current dominant economic model throughout the world with one that takes into account man integrated with the environment, with nature, that is, the model of sustainable development. The Paris Agreement was analyzed based on the COP 21 organized by the UN through which 195 countries and the European Union defined how humanity will fight global warming in the coming decades, as well as was analyzed literature related to global

warming and climate change to extract the conclusions that point out how to replace the current development model with the sustainable development model.

Global warming, climate change and the Paris Agreement with COP 21

Global warming is a climatic phenomenon that, to a large extent, represents an increase in the average temperature of the Earth's surface that has been occurring over the last 150 years. The IPCC (Intergovernmental Panel on Climate Change), instituted by the UN (United Nations) states that the global warming observed is most likely due to an increase in the greenhouse effect and there is strong evidence that global warming is largely due to human action. Many meteorologists and climatologists consider it proven that human action is actually influencing the occurrence of the phenomenon. There is no doubt that human activity on Earth causes changes in the environment in which we live. Many of these environmental impacts result from the unsustainability of society's current development model.

The unsustainability of society's current development model stems from the fact that it is responsible for the depletion of the planet's natural resources, the degradation of the planet's environment, the rapid increase in global temperatures and consequent climate change that can become catastrophic for humanity. These facts increasingly show the need for the paradigm that guided the development of human society since the 1st Industrial Revolution needs to be profoundly modified. The main environmental threat is represented by climate change that to avoid it the Paris Agreement was signed at the COP 21 organized by the UN.

After several years of negotiations, deadlocks, timid advances and failures, 195 countries and the European Union produced at

COP 21, in Paris, a global agreement that defines how humanity will fight global warming in the coming decades. For the first time, all countries in the world are committed to reducing greenhouse gas emissions, strengthening resilience (ability to return to its natural state, especially after a critical and unusual situation) and uniting in a common cause against climate changes. The agreement is not mandatory for all goals by the countries as the majority intended.

The Paris Agreement's stated aim was to contain the global average temperature rise which is 15 °C well below 2 °C above pre-industrial levels and to make efforts to limit the temperature rise to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change. The reference to the 1.5 °C reduction target came about thanks to the joint action of island countries, which will be condemned to long-term extinction by the rise in sea level resulting from global warming that would raise the temperature by 2 °C.

The world's leading climate scientists have warned that there are only two years of global warming to reach a maximum 1.5 °C increase in the planet's average temperature, beyond which even half a degree increase will significantly increase the risks of drought, floods, extreme heat and poverty for hundreds of millions of people. To keep the temperature rise between 1.5 °C and 2 °C, the half-degree difference can prevent corals from being completely eradicated and relieve pressure on the Arctic. There is a scientific basis that the 1.5 °C temperature rise is not just a political concession. There is growing recognition that considering a 2°C increase as a goal is dangerous.

Two main aspects were not considered in the Paris Agreement: (1) the long-term goal of decarbonizing the economy by 2050 or

cutting at least 70% of global greenhouse gas emissions by the middle of the 21st century; and 2) the goal of limiting the increase in the planet's average temperature is not accompanied by a roadmap stating how the world intends to reach less than 2 °C or 1.5 °C, which weakens the pursuit of this goal.

An issue that was not addressed at COP 21 concerns the extinction of wars that are also largely responsible for the environmental deterioration of the planet. Among the countless dire consequences of wars are the devastating effects on the environment. The bombing of military targets and civilian populations, the intense movement of military vehicles and troops, the large concentration of combat flights, the missiles launched on cities and the destruction of military and industrial structures during all these conflicts also cause the emission of metals and other substances that contaminate soil, water and air. In addition to environmental contamination, it is also necessary to consider the modification of natural landscapes and the long-term loss of biodiversity, whether due to the presence of land mines or chemical agents dispersed in the environment. This was also not considered at COP 21.

The Paris Agreement does not resolve the fundamental issues and the voluntary targets indicated by each of the nations are not sufficient to ensure that the increase in global warming will stay well below 2 degrees Celsius towards 1.5 degrees Celsius by the year 2100. Furthermore, the document does not present proposals that contribute to the construction of a sustainable development model on our planet in place of the current unsustainable and chaotic model of capitalist development.

Finally, it is important to emphasize that the Paris Agreement is also silent on the construction of a global governance system that is capable of ordering the planet's environment to prevent its

degradation that contributes to global warming and catastrophic climate change and to avoid proliferation of conflicts in international relations that worsen every day, fueling the occurrence of wars, including a devastating new world war. Given these serious omissions at COP 21, it can be said that we will hardly be able to try to avoid catastrophic changes in the climate of planet Earth in the 21st century.

Global warming, climate change and its impacts on human health

Global warming will have a huge impact on the health of the world's population. Global warming will lead to an increase in heart attacks and respiratory illnesses according to a study by several researchers who emphasize that they only now recognize the repercussions of global warming on human health. This study considers that the increase in the frequency of hot flashes will lead to a doubling or even a tripling by 2050 of the cases of infarction and respiratory diseases.

There will also be an increase in the number of people affected by asthma, infections transmitted by mosquitoes, cases of food poisoning and viral infections such as avian flu and atypical pneumonia (SARS). According to researchers, Australia will be one of the nations most affected by climate change and its impacts on health, with a growing number of victims of heart attacks and the multiplication of cases of asthma, food poisoning, infectious diseases, obesity, diabetes and mental disorders. Climate change directly affects human health through extreme weather events, the spread of vector-borne and other infectious diseases, and aggravated air pollution. Indirectly, climate change affects human health, causing malnutrition, worsening working conditions and creating mental stress.

Extreme heat is one of the leading causes of climate-related death. The combination of climate change and urbanization continues to intensify heat extremes around the world. Thermal stress affects productivity and can increase the risk of cardiovascular, respiratory and kidney diseases. Even heating with a 1°C temperature rise potentially reduces productivity by between 1% and 3% of those working outdoors. Poor populations without access to air conditioning will be the most affected, as they will find it more difficult to escape the extreme heat. Heat stress combined with physical exertion and lack of hydration can cause chronic kidney disease (CKD), which decreases kidney function over time. CKD disproportionately affects poor populations and manual workers who work in hot thermal conditions.

Food security is determined by environmental, social, political and economic factors. Food availability problems will become more pronounced as global temperature rises. There may be a reduction in the availability of food. For every degree of temperature increase, world wheat production falls by 6% and world rice production falls by 10%. Changes in rainfall, increase in the planet's average temperature and changes in soil composition are determining factors for crop growth and quality. Climate change could reduce the nutritional value of crops, causing under nutrition to be considered by some researchers as the greatest potential health impact of climate change this century. New research suggests that in a warmer world insect metabolism increases, causing them to eat more and increasing crop losses.

There may be water shortages. Climate change is putting further pressure on water security, altering the hydrological cycle, just as warming glacier layers are impacting freshwater supplies. The Middle East, India, Antarctica and Greenland are facing

significant freshwater loss. 80% of the world's population is already facing threats to its water security, including water availability, demand for water and its pollution. Populations living in low-lying areas are at greater risk of flooding and contamination of their freshwater sources by rising sea levels and soil salinization. Higher water temperatures, increased rainfall and droughts can increase water pollution and harm human health.

Vector-borne diseases may occur. Climate change causes changes in temperature, precipitation and humidity, and as a result, increases the risk of disease transmission. Climate change is expected to change disease patterns with some regions facing increases while others may see reductions. Malaria, dengue, Japanese encephalitis and tick-borne encephalitis are infectious diseases transmitted by insects that will be caused by climate change. Air pollution is currently one of the main health risk factors, leading to significant increases in mortality and morbidity due to cardiovascular and pulmonary diseases. Air pollution around the world often caused by the use of the same fossil fuels that cause climate change can make climate change worse. Air pollution is a big problem especially in urban areas.

Conclusions

Science shows that the impacts of climate change on human health in a global warming scenario with an increase in temperature of 1.5°C are lower than those expected in a scenario of a 2°C increase which, in turn, are significantly smaller compared to the situation created in a 3°C rise scenario. Therefore, limiting global warming to 1.5°C has substantial health benefits for people. But even in this scenario climate change will still create health problems for many.

Global warming and climate change tend to produce a real crisis of humanity by threatening its survival, making it essential to build a new model of society or a new world order based on the model of sustainable development that makes each country act at a level planetary in an interdependent and rational way with common goals, without which the survival of human beings and life on the planet could be put in check.

To change this situation that threatens the future of humanity, it is necessary to promote a profound transformation of current society. The unsustainability of the current model of capitalist development is evident as it has been extremely destructive of living conditions on the planet. Therefore, it is essential that a sustainable society is built, replacing the current dominant economic model throughout the world with one that takes into account man integrated with the environment, with nature, that is, the sustainable development model, this goal not considered at COP 21.

To build a sustainable society, the following objectives should be pursued:

1. Reduce global carbon emissions, promoting changes in the current global energy matrix based on fossil fuels (coal and oil) by one based on renewable energy resources, hydroelectricity, biomass, solar and wind energy, to prevent or minimize global warming and, consequently, the occurrence of catastrophic changes in the Earth's climate as well as in the current global transport matrix aiming at its rationalization and the use of electricity and renewable fuels to replace fossil fuels.
2. Reduce nitrous oxide emissions to meet the UN target of limiting Earth's warming to 2°C.
3. Improve energy efficiency by developing actions to achieve energy savings in the city and countryside, in

- buildings, agriculture, industries and transport in general, thus contributing to the reduction of global carbon emissions and, consequently, avoid the greenhouse effect.
4. Make motor vehicles and equipment for domestic, agricultural and industrial uses more efficient, buildings are designed for maximum natural lighting, natural cooling and heating savings, agriculture and industry are modeled to require the least amount of energy resources and raw materials, also contemplating the self-production of energy with the use of residues from its production processes based on reverse logistics and, finally, new transport alternatives from the bicycle to the high-capacity ones based on railroads are used, among other initiatives.
 5. Combat soil, air and water pollution, reducing waste by recycling used and discarded materials.
 6. Restore and stabilize the biological basis by making land use follow the basic principles of biological stability (nutrient retention, carbon balance, soil protection, water conservation and preservation of species diversity) and make the rural areas have greater diversity than today with balanced land management where there is crop rotation and species cultivation, there are no wasted crops, tropical forests are conserved, there is no deforestation to obtain wood and other products, new trees are planted, there is efforts to contain desertification by turning degraded areas into productive lands, the extensive use of pastures is eliminated, and the food chain of affluent societies includes less meat and more grains and vegetables.
 7. Adjust population growth to the resources available on the planet, reducing their birth rates, especially in countries and regions with high population growth rates to limit the world population to 10 billion people.

8. Reduce social inequalities, including the adoption of measures that contribute to meeting the basic needs of the world population, such as food, clothing, housing, health services, employment and a better quality of life.
9. Ensuring that economic growth and resulting wealth are shared by the entire population, education services allow the population to increase levels of qualification for work and culture, health services are effective in combating child mortality and contribute to increased life expectancy of the population, all men and women have decent housing and there are public and private investments at the necessary level that contribute to the reduction of mass unemployment as a result of the general crisis of the world capitalist system that tends to worsen in the future.

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