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**GLOBAL WARMING WILL CAUSE LOSSES FOR ONE HUNDRED TRILLION DOLLARS, MINIMUM**



[MASTEREARTH](https://www.amazon.com/-/es/Roberto-Guillermo-Gomes/dp/6203046671/ref%3Dsr_1_1?__mk_es_US=%C3%85M%C3%85%C5%BD%C3%95%C3%91&crid=19FT2RBUNV8DM&keywords=masterearth&qid=1685118271&s=books&sprefix=masterearth%2Cstripbooks-intl-ship%2C587&sr=1-1)

“Putting in place rapid, global and efficient solutions to provide a fundamental solution to the problems of climate change and the depredation of the environment in general, is a matter of absolute survival. It is not a moral or ethical cause. If we do not perform the necessary actions in a timely manner, with sufficient intelligence to renew the harmony between Humanity and nature, as a result, quantifiable economic losses will be produced in no less than 100 trillions dollars in the next 50/100 years and millions will die. of people because of the extension of droughts, the lack of food and drinking water, along with the flooding of coastal areas, “said Roberto Gomes.

“The Living Planet Index – which measures more than 10 thousand critical populations of mammals, birds, reptiles, amphibians and fish – has fallen by 52% between 1970 and 2010. Latin America has lost 83% of the populations of fish, birds, mammals , amphibians and reptiles in the last 40 years. At the same time, the demand for resources that we exert on natural sources already exceeds 50%, what the planet can renew and projections about the future, due to the growth of overpopulation and the increase in the quality of life, point to a worsening of the picture. By 2030 the pressure on nature will be 100% above the capacity of the planet and by 2050 200%. Clearly, we are depleting the reserves of our world to extract the elements of our basic subsistence, “he explained.

He also stated that “as demand grows geometrically, desertification expands, ocean pollution and loss of vital water resources. All this tells us that the “Earth Hour” is coming, where food will be scarce and pandemics will return. “

“Five of the six warmest years – he said – since 1971, that is to say in 44 years, have been recorded in this 21st century. At the same time, highlighted the difference between this year 2015 and 2006, which is the second warmer, is 0.89 degrees Celsius; and 2010, the third warmest was 0.1ºC less warm than 2006. The next one, 1994, was 0.18 ºC less warm than the previous one. We have crossed the solar minimum and gone through a period of volcanic eruptions that emit sulfur dioxide into the atmosphere, which is a cooling agent. This explains the pause that occurred in previous years in the growth curve of global warming. Now we are again witnessing the real effects. “

About the global emissions of CO2, said that “the current average emissions in the atmosphere oscillates around 400 ppm, or 0.040%, with some day-night variations, seasonal anthropogenic and localized pollution peaks. The increase has gone from 0.5 ppm / year in 1960 to 2 ppm / year in 2000, with a minimum of 0.43 in 1992 and a maximum of 3 ppm in 1998. At this rate in 2030 we will have reached 440 ppm or the fateful threshold of 450 ppm, with the consequence of an increase in the global temperature of 2 degrees Celsius and probably 5 degrees at the poles. Anthropogenic emissions increase 1.7% per year. In 1990, 20,878 Gt / year of CO2 were emitted. For 2015 it is estimated that we will issue 40,000 Gt / year. In 25 years we have doubled the level of pollution. This level of CO2 in the air did not exist for 2.1 million years. And according to the International Energy Agency, CO2 emissions will increase 130% by 2050. “

As for the claims of the “deniers”, he said that “laboratory tests show that carbon dioxide absorbs long-wave radiation. Satellite measurements confirm that there is less longwave radiation that escapes the space at the wavelengths at which carbon dioxide absorbs. The result of this lack of balance is the accumulation of heat over the past 40 years. The greenhouse effect of the atmosphere returns to Earth again 333 W / m². Globally, the surface of the Earth absorbs solar energy by 161 w / m² and the greenhouse effect of the atmosphere receives 333 w / m², which adds up to 494 w / m², as the surface of the Earth emits (or in other words lost) a total of 493 w / m² (which is broken down into 17 w / m² of sensible heat, 80 w / m² of latent heat of the evaporation of the water and 396 w / m² of infrared energy), supposes a net absorption of heat of 0.9 w / m², which at the present time is causing the warming of the Earth “

He added that “the so-called Keeling curve shows the continuous growth of CO2 in the atmosphere since 1958. Collect Keeling measurements at the observatory of the Mauna Loa volcano. These measurements were the first significant evidence of the rapid increase of CO2 in the atmosphere and attracted global attention on the impact of greenhouse gas emissions. The greenhouse effect is essential for the life of the planet: without CO2 or water vapor (without the greenhouse effect) the average temperature of the Earth would be about 33 ° C less, of the order of 18 ° C below zero, which would make life unviable. Of the total CO2 emissions only 45% remain in the atmosphere, over 30 % is absorbed by the oceans and the remaining 25% goes to the terrestrial biosphere. Therefore not only the atmosphere is increasing its concentration of CO2, it is also happening in the oceans and in the biosphere. “

He affirmed that “in the last century the global average temperature has increased close to 0.8º C, being since 1975 the increase per decade of about 0.15º C. According to the IPCC by the end of the century the temperature will increase by 2-3º C. It is an abrupt temperature jump, as it did not happen during the last 10,000 years and that will not allow 30% of the species to adapt and therefore survive. “

“The oceans absorb together,” he said, “a third of human CO2 emissions. Since the industrial era they have been overloaded with a total of 120 × 109 tons of said gas emitted by the burning of fossil fuels. This increase of CO2 in the oceans causes a low pH of the water, making it more acidic and decreasing the concentration of carbonates. This affects marine life, especially crustaceans and molluscs that use calcium carbonate to make their exoskeletons. Even the plankton can be indirectly impacted. “

Regarding the domino effect, he said that “with global warming the oceanic circulation decreases and the superficial layers of water will be saturated with CO2 and will no longer be able to retain it. As the water warms, the proportion of CO2 retention per liter of seawater decreases in direct proportion. This results in the accumulation of atmospheric CO2 will experience a jump and a sudden rise in temperature will occur throughout the globe. But the stopping of ocean currents is considered very unlikely by the 2007 IPCC report, which says nothing about the progressive warming of water. “

The deposits of methane gas hydrates, when released, can dramatically change the global average temperature by up to 6º and by 12º C at the poles. Gomes says that “in the case of methane, its cumulative greenhouse effect in 20 years is 72: equal mass in the atmosphere, methane will trap heat 72 times more than CO2 in the next 20 years, 25 in the next 100 years and 7.6 in the next 500 years. “

Submarine methane feedback is beginning: “Methane leakage from the seabed is much more widespread on the US Atlantic margin than previously thought. It is associated with a phenomenon of rising temperatures that until now had been identified only in Arctic waters, according to a study conducted by researchers from the Mississippi State University and the United States Geological Survey. Methane plumes identified in the marine strip between Cape Hatteras, North Carolina and the Georges Bank, Massachusetts, are emanating from at least 570 cold emanation points from the sea floor on the outer continental shelf and the continental slope. These cold emanations are the areas where gases and liquids seep into the water overlying the sediments. “

The IPCC projects an increase of 2º C and an increase in the ocean level of 1 meter for the century, but the recent report of the former NASA scientist, Dr. James Hansen, states that with only 1º C more the waters will rise to 8 meters, at the latest in only 50 years. And justify this with what happened in the Eemian, 100,000 years ago.

Gomes concluded that “in order to overcome this new situation, which places us in” Planetary Emergency “, intensive capital is needed, such as those mobilized during World War II. The message is that, for free, it will not solve the environmental problem. In this sense from GSI, we propose the Green Solidarity Fund of 2% of world GDP, annually, to meet this demand, or the option of the Planetary Army saving $ 1 trillion per year, among all the countries that adhere to the new coalition. An extraordinary situation has been created that requires extraordinary resources. The cost is two trillion dollars per year. Or this, or chaos for two decades. It must be considered that only the United States has 1,700 coastal locations. The main cities of the world are coastal and hundreds of millions of people live there. When they flood, where will they go? What will they eat? What will they drink? Where will they sleep? I repeat the same, this is a matter of survival and pure logic. Is Dr. Hansen right or wrong? “

\* According to the WHO, 7 million people per year die prematurely from air pollution. Calculating a thousand dollars per month and per year, for 30 years for each of these victims, this represents a total loss of 2,520,000,000,000 dollars for the global system.

**EL CALENTAMIENTO GLOBAL CAUSARÁ PÉRDIDAS POR CIEN BILLONES DE DÓLARES, COMO MÍNIMO**

“Poner en marcha soluciones rápidas, globales y eficientes para dar una solución fundamental a los problemas del cambio climático y la depredación del medio ambiente en general, es una cuestión de supervivencia absoluta. No es una causa moral o ética. Si no realizamos las acciones necesarias en tiempo y forma, con la inteligencia suficiente para renovar la armonía entre la Humanidad y la naturaleza, como resultado se producirán pérdidas económicas cuantificables en no menos de 100 billones de dólares en los próximos 50/100 años y morirán millones de personas por la extensión de las sequías, la falta de alimentos y agua potable, junto con las inundaciones de las zonas costeras”, dijo Roberto Gomes.

“El Índice Planeta Vivo -que mide más de 10 mil poblaciones críticas de mamíferos, aves, reptiles, anfibios y peces- ha caído un 52% entre 1970 y 2010. América Latina ha perdido el 83% de las poblaciones de peces, aves, mamíferos , anfibios y reptiles en los últimos 40 años. Al mismo tiempo, la demanda de recursos que ejercemos sobre las fuentes naturales ya supera el 50%, lo que el planeta puede renovar y las proyecciones sobre el futuro, por el crecimiento de la sobrepoblación y el aumento de la calidad de vida, apuntan a un empeoramiento. de la imagen Para el 2030 la presión sobre la naturaleza será del 100% por encima de la capacidad del planeta y para el 2050 del 200%. Claramente, estamos agotando las reservas de nuestro mundo para extraer los elementos de nuestra subsistencia básica”, explicó.

También afirmó que “a medida que la demanda crece geométricamente, se expande la desertificación, la contaminación de los océanos y la pérdida de recursos hídricos vitales. Todo esto nos dice que se acerca la “Hora del Planeta”, donde los alimentos escasearán y volverán las pandemias. “

“Cinco de los seis años más cálidos -dijo- desde 1971, es decir en 44 años, se han registrado en este siglo XXI. Al mismo tiempo, resaltó que la diferencia entre este año 2015 y 2006, que es el segundo más cálido, es de 0,89 grados centígrados; y 2010, el tercero más cálido fue 0,1 ºC menos cálido que el 2006. El siguiente, 1994, fue 0,18 ºC menos cálido que el anterior. Hemos cruzado el mínimo solar y atravesado un período de erupciones volcánicas que emiten dióxido de azufre a la atmósfera, que es un agente refrigerante. Esto explica la pausa que se produjo en años anteriores en la curva de crecimiento del calentamiento global. Ahora estamos de nuevo presenciando los efectos reales. “

Sobre las emisiones globales de CO2, dijo que “el promedio actual de emisiones a la atmósfera oscila alrededor de 400 ppm, o 0,040%, con algunas variaciones día-noche, picos estacionales de contaminación antrópica y localizada. El aumento ha pasado de 0,5 ppm/año en 1960 a 2 ppm/año en 2000, con un mínimo de 0,43 en 1992 y un máximo de 3 ppm en 1998. A este ritmo en 2030 habremos alcanzado las 440 ppm o el fatídico umbral de 450 ppm, con la consecuencia de un aumento de la temperatura global de 2 grados centígrados y probablemente de 5 grados en los polos. Las emisiones antropogénicas aumentan un 1,7% al año. En 1990 se emitieron 20.878 Gt/año de CO2. Para 2015 se estima que emitiremos 40.000 Gt/año. En 25 años hemos duplicado el nivel de contaminación. Este nivel de CO2 en el aire no existía desde hace 2,1 millones de años. Y según la Agencia Internacional de la Energía, las emisiones de CO2 aumentarán un 130% para 2050.”

En cuanto a las afirmaciones de los “negadores”, dijo que “las pruebas de laboratorio muestran que el dióxido de carbono absorbe la radiación de onda larga. Las mediciones satelitales confirman que hay menos radiación de onda larga que escapa del espacio en las longitudes de onda en las que se absorbe el dióxido de carbono. El resultado de esta falta de equilibrio es la acumulación de calor durante los últimos 40 años. El efecto invernadero de la atmósfera devuelve a la Tierra de nuevo 333 W/m². Globalmente, la superficie de la Tierra absorbe energía solar en 161 w/m² y el efecto invernadero de la atmósfera recibe 333 w/m², lo que suma 494 w/m², ya que la superficie de la Tierra emite (o dicho de otro modo, pierde ) un total de 493 w/m² (que se descompone en 17 w/m² de calor sensible, 80 w/m² de calor latente de la evaporación del agua y 396 w/m² de energía infrarroja), supone una absorción neta de calor de 0,9 w/m², que en la actualidad está provocando el calentamiento de la Tierra”

Agregó que “la llamada curva de Keeling muestra el crecimiento continuo de CO2 en la atmósfera desde 1958. Recoja las mediciones de Keeling en el observatorio del volcán Mauna Loa. Estas mediciones fueron la primera evidencia significativa del rápido aumento de CO2 en la atmósfera y atrajeron la atención mundial sobre el impacto de las emisiones de gases de efecto invernadero. El efecto invernadero es fundamental para la vida del planeta: sin CO2 ni vapor de agua (sin efecto invernadero) la temperatura media de la Tierra sería de unos 33 °C menos, del orden de los 18 °C bajo cero, lo que haría la vida inviable. Del total de emisiones de CO2 solo el 45% permanece en la atmósfera, más del 30% es absorbido por los océanos y el 25% restante va a parar a la biosfera terrestre.

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Gomes is currently studying 4 master's degrees and other courses online, so by the end of 2023 it will add 50 university and tertiary degrees. At the end of 2024, he is scheduled to start his first doctorate in Neuroscience, and then he will do another 3. In the remainder of his life, he plans, God willing, to add 100 degrees to complete his academic and scientific training.