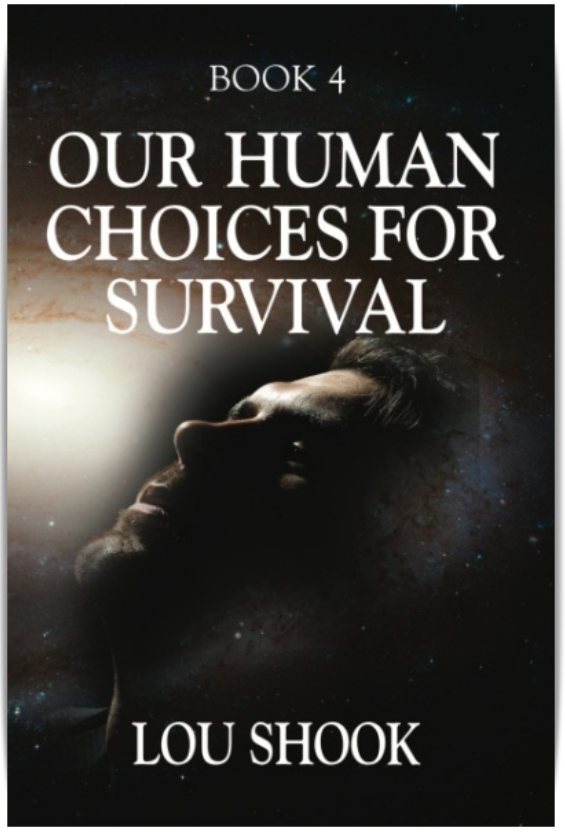

This book is dedicated to our Efforts to achieve and maintain a sustainable world. It is of maximum importance, that we Humans work together. We Humans World-wide today are all related to each other. Population has exploded to over seven billion Humans. Risk of extinction from Earth. If we fail to react for another 25 years, it will be too late.

OUR HUMAN CHOICES for SURVIVAL

by Lou Shook

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BOOK 4

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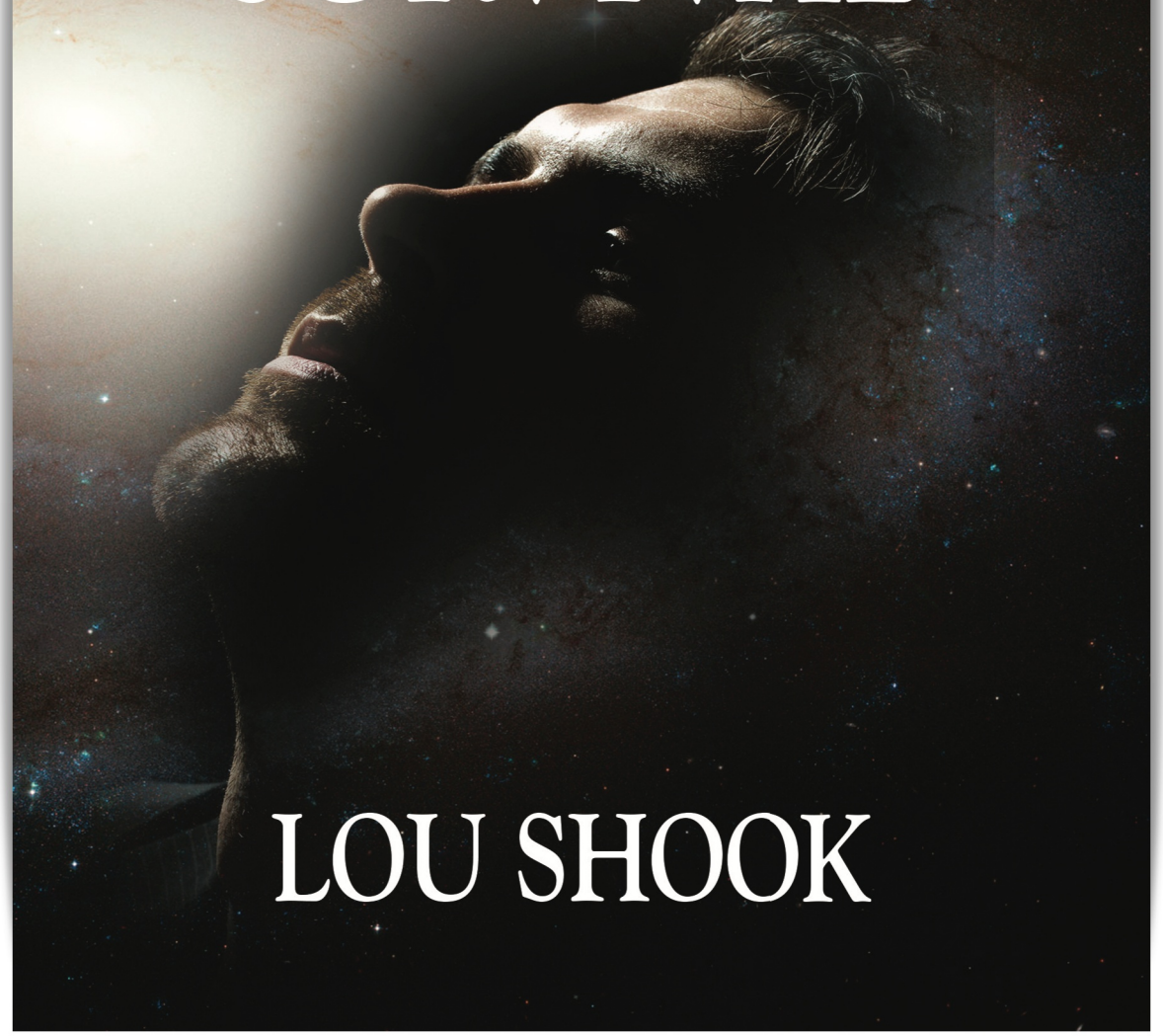

LOU SHOOK

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This is a work of historical fiction, based on actual persons and events. The author has taken creative liberty with many details to enhance the reader's experience.

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CHAPTER FIVE

ACTION NEEDED TO OVERCOME THREATENED DISASTER

The Work and Leadership involved in uniting World Humanity to SAVE HUMAN CIVILIZATION goes beyond today's Human motivation. It requires the motivation that existed some five thousand years ago during the construction of the Egyptian Pyramid of Giza. This lack of motivation is our biggest problem in our efforts to unite Humans World-wide in preventing this tragedy.

Certainly, the Problem is well recognized and documented. World Scientists addressing this problem include Leaders Naomi Klein, William J. Ripple, Christopher Wolf, Thomas M. Newsome, Mauro Galetti, Mohammed Alamgir, Eileen Crist, Mahmoud I. Mahmoud, William F. Laurance, Arthur C. Clarke, Isaac Asimov, Paul R. Ehrlich, Matthew Potoski, Aseem Prakash, and others.

What is lacking is the World-wide recognition and effort to generate the Action needed. We Humans tend to be so consumed with our own problems, that few of us give heed to others. Only by a major tragedy, do we seem to awake.

WHAT IS NEEDED IS WORLD-WIDE RECOGNITION OF THE PROBLEM, AND WORLD-WIDE PROMOTION TO RESOLVE THE PROBLEM. Hopefully this Book might promote the needed action.

With so many daily distractions and opportunities facing us Humans, we Humans fail to give thought for possible tragedy in the distant Future. This is an unfortunate 'sign of the times'. We Humans are too preoccupied with our own lives, to give much thought beyond. To get World Humans to unite together in

solving the Threat to our continued Human Existence on Earth, a Plan of Action is desperately needed.

#

RESOLUTION OF CLIMATE CHANGE.

Our World-Wide Human Population faces the Existential Risk of our extinction from Earth due to CLIMATE CHANGE.

Naomi Klein's response to Climate Change is an excellent portrayal of the problems that we Humans face. Naomi Klein writes, "Responding to CLIMATE CHANGE requires that we break every rule in the free-market playbook and that we do so with great urgency. We will need to rebuild the public sphere, reverse privatizations, re-localize large parts of economies, scale back overconsumption, bring back long-term planning, heavily regulate and tax corporations, maybe even nationalize some of them, cut military spending and recognize our debts to the global South. Of course, none of this has a hope in hell of happening unless it is accompanied by a massive, broad-based effort to radically reduce the influence that corporations have over the political process. That means, at a minimum, publicly funded elections and stripping corporations of their status as 'people' under the law. In short, CLIMATE CHANGE supercharges the pre-existing case for virtually every progressive demand on the books, binding them into a coherent agenda based on a clear scientific imperative. We Humans must work together in our quest to resolve this disaster."

What makes this Problem so Critical is our inability to know the Critical Level of World Temperature beyond which our Human Civilization cannot survive; and our limited ability to control the level of World Temperature.

James Hansen warned, “Global warming of more than 1°C above today’s global temperature [of 0.7°C] would likely constitute ‘dangerous anthropogenic interference’ with climate. I infer that it is desirable to avoid any further global warming".

The European Union set a target of maximum warming of 2°C in the belief that warming beyond this represents an unreasonable risk of ‘dangerous’ climate change.

There are now suggestions that we should consider a 3 degrees C warming cap, even though “the Earth’s history suggests that with warming of 2–3°C the new equilibrium sea level will include not only most of the ice from Greenland and West Antarctica, but a portion of East Antarctica, raising sea level of the order of 25 meters.

To be brutal, Sir Nicholas Stern’s 550-ppm target is a 6°C increase and contemplating a 550-ppm policy target for Australia is setting an equilibrium temperature rise of 6°C as policy. And we know that “the last time the planet was 5°C warmer, just prior to the glaciation of Antarctica about 35 million years ago, there were no large ice sheets on the planet. Given today’s ocean basins, if the ice sheets melt entirely, sea level will rise about 70 meters" (James Hansen).

Contrary to lethargic ice sheet models, real world data suggest substantial ice sheet and sea level change in centuries, not millennia.

And what if a target of 550 ppm CO_2 were to result in the destruction of Algae, the ocean’s greatest CO_2 sink? James Lovelock says severe disruption of the algae/DMS relation would signal spiraling and irreversible climate change.

In response to this problem of Climate Change, Professor Tim Flannery said climate change was the most serious issue

confronting humanity. “There’s a 10 per cent chance of truly catastrophic rises in temperatures, so we’re looking at six degrees or so”, and “That would be a disaster for all life on earth. Three degrees will be a disaster for all life on earth.”

Events on the ground compel us to conclude that the cap needs to be substantially less than 1ºC. Policy and goal setting seem precariously wedged between scientific need and political “reality", an ambivalence keenly expressed in Stern’s work.

The logical Conclusion is the Proposal of James Hansen (to avoid any further global warming), in spite of the political “reality" faced to achieve this. The steps needed to resolve this Problem of Climate Change are complicated and difficult. Much work lies ahead of us Humans to achieve Success.

#

RESOLUTION OF HUMAN OVERPOPULATION.

The rapid recent increase in human population has created concern. The population was expected to reach between 8 and 10.5 billion between the years 2040 and 2050. In 2017, the United Nations increased the medium variant projections to 9.8 billion for 2050 and 11.2 billion for 2100. The UN population forecast of 2017 was predicting "near end of high fertility" globally and anticipating that by 2030 over ⅔ of world population will be living in countries with fertility below the replacement level and for total world population to stabilize between 10-12 billion people by year 2100. (UN projections from 2011 had suggested the population could grow to as many as 15 billion by 2100.)

Throughout recorded history, population growth has usually been slow despite high birth rates, due to war, plagues and other diseases, and to high infant mortality. During the 750 years

before the Industrial Revolution, the world's population increased very slowly, remaining under 250 million.

Dramatic growth beginning in 1950 (above 1.8% per year) coincided with greatly increased food production as a result of the industrialization of agriculture brought about by the Green Revolution. The rate of human population growth peaked in 1964, at about 2.1% per year. For example, Indonesia's population grew from 97 million in 1961 to 237.6 million in 2010, a 145% increase in 49 years. In India, the population grew from 361.1 million people in 1951 to just over 1.2 billion by 2011, a 235% increase in 60 years.

There is concern over the sharp population increase in many countries, especially in Sub-Saharan Africa, that has occurred over the last several decades, and that it is creating problems with land management, natural resources, and access to water supplies. The population of Chad has, for example, grown from 6,279,921 in 1993 to 10,329,208 in 2009. Niger, Uganda, Nigeria, Tanzania, Ethiopia and the Democratic Republic of the Congo are witnessing a similar growth in population. The situation is most acute in western, central, and eastern Africa. Refugees from places like Sudan have further strained the resources of neighboring states like Chad and Egypt. Chad is also host to roughly 255,000 refugees from Sudan's Darfur region, and about 77,000 refugees from the Central African Republic, while approximately 188,000 Chadians have been displaced by their own civil war and famines, having fled to either the Sudan, the Niger or, (more recently) Libya.

Says Peter Raven, former President of the American Association for the Advancement of Science (AAAS), “we have driven the rate of biological extinction (the permanent loss of species), up several hundred times beyond its historical levels, and are threatened with the loss of a majority of all species by the end of the 21st century."

The world's ecological capacity is simply insufficient to satisfy the ambitions of China, India, Japan, Europe and the United States as well as the aspirations of the rest of the world in a sustainable way.

Human overpopulation, continued population growth, and overconsumption are the primary drivers of biodiversity loss and the 6th (and ongoing) mass species extinction.

David Pimentel has stated that "With the imbalance growing between population numbers and vital life sustaining resources, humans must actively conserve cropland, freshwater, energy, and biological resources. There is a need to develop renewable energy resources. Humans everywhere must understand that rapid population growth damages the Earth's resources and diminishes human well-being."

The *Population Reference Bureau* in the US reported that the population of Sub-Saharan Africa – the poorest region in the continent – is rising faster than most of the rest of the world, and that "Rapid population growth makes it difficult for economies to create enough jobs to lift large numbers of people out of poverty." Seven of the 10 countries in Sub-Saharan Africa with the highest fertility rates also appear among the bottom 10 listed on the United Nations' Human Development Index.

Carl Sagan, Arthur C. Clarke, and Isaac Asimov, have argued that shipping any excess population into space is not a viable solution to human overpopulation. According to Clarke, "the population battle must be fought or won here on Earth". The problem for these authors is not the lack of resources in space (as shown in books such as *Mining the Sky*), but the physical impracticality of shipping vast numbers of people into space to "solve" overpopulation on Earth.

Projecting future sea level is challenging, due to the complexity of many aspects of the climate system.

Developing a Solution for resolving our World-wide Human Overpopulation is extremely complicated and requires input from our seven plus billion Humans World-wide. There are many different aspects involved: Maximum Size of World Population suitable for Earth's resources, and action needed to achieve; development as needed to provide support World-wide; steps necessary to acquire Leadership and Harmony amongst us Humans working together, etc. The many related Details would be spelled out in the Plan of Action.

Resolving this Problem involves both World-wide Human Overpopulation and World-wide Human Harmony. We must give this Goal our best efforts to achieve!

#

RESOLUTION OF SEA LEVEL RISE.

Since at least the start of the 20th century, the average global sea level has been rising. Between 1900 and 2016, the sea level rose by 16–21 cm (6.3–8.3 in). More precise data gathered from satellite radar measurements reveal an accelerating rise of 7.5 cm (3.0 in) from 1993 to 2017, which is a trend of roughly 30 cm (12 in) per century. This acceleration is due mostly to human-caused global warming, which is driving thermal expansion of seawater and the melting of land-based ice sheets and glaciers. Between 1993 and 2018, thermal expansion of the oceans contributed 42% to sea level rise; the melting of temperate glaciers, 21%; Greenland, 15%; and Antarctica, 8%. Climate scientists expect the rate to further accelerate during the 21st century.

Projecting future sea level is challenging, due to the complexity of many aspects of the climate system. A number of studies have concluded that a global sea level rise of 200 to 270 cm (6.6 to 8.9 ft) this century is "physically plausible". A conservative estimate of the long-term projections is that each Celsius degree of temperature rise triggers a sea level rise of approximately 2.3 meters (4.2 ft/degree Fahrenheit) over a period of two millennia: an example of climate inertia.

Sea level rises can influence human populations considerably in coastal and island regions. Widespread coastal flooding is expected with several degrees of warming sustained for millennia. Further effects are higher storm-surges and more dangerous tsunamis, displacement of populations, loss and degradation of agricultural land and damage in cities. Natural environments like marine ecosystems are also affected, with fish, birds and plants losing parts of their habitat.

The sea level was almost constant during the last 2,500 years, before the recent rising trend that started at the end of the 19th century or in the beginning of the 20th. To get precise measurements for sea level, researchers studying the ice and the oceans on our planet factor in ongoing deformations of the solid Earth, in particular due to landmasses still rising from past ice masses retreating, and also the Earth's gravity and rotation.

Global mean sea-level rose 19.5 cm (7.7 in) between 1870 and 2004 at an average rate of about 1.44 mm/yr (1.7 mm/yr during the 20th century). Data collected by the Commonwealth Scientific and Industrial Research Organization (CSIRO) in Australia show the current global mean sea level trend to be 3.2 mm (0.13 in) per year, a doubling of the rate during the 20th century. This is an important confirmation of climate change simulations which predicted that sea level rise would accelerate in response to global warming.

The ice sheets store most of the land ice (~99.5%), with a sea-level equivalent (SLE) of 7.4 m (24 ft) for Greenland and 58.3 m (191 ft) for Antarctica. Scientists have found that ice is being lost, and at an accelerating rate.

A 2018 systematic review study estimated that ice loss across the entire Antarctic continent was 43 gigatons (Gt) per year on average during the period from 1992 to 2002, but has accelerated to an average of 220 Gt per year during the five years from 2012 to 2017. Most of the melt comes from the West Antarctic Ice Sheet, but the Antarctic Peninsula and East Antarctic Ice Sheet also contribute. The sea-level rise due to Antarctica has been estimated to be 0.25 mm per year from 1993–2005, and 0.42 mm per year from 2005 to 2015. All datasets generally show an acceleration of mass loss from the Antarctic ice-sheet, but with year-to-year variations.

The world's largest potential source of sea level rise is the East Antarctic Ice Sheet, which holds enough ice to raise global sea levels by 53.3 m (175 ft).

Most ice on Greenland is part of the Greenland ice sheet which is 3 km (2 mi) at its thickest. The rest of the ice on Greenland is part of isolated glaciers and ice caps. Average annual ice loss in Greenland more than doubled in the early 21st century compared to the 20th century. Some of Greenland's largest outlet glaciers, such as Jakobshavn Isbræ and Kangerlussuaq Glacier, are flowing faster into the ocean.

Observational and modelling studies of mass loss from glaciers and ice caps indicate a contribution to sea-level rise of 0.2-0.4 mm per year, averaged over the 20th century. Over the 21st century, this is expected to rise, with glaciers contributing 7 to 24 cm (3 to 9 in) to global sea levels.

A 2016 study led by Jim Hansen concluded that based on past climate change data, sea level rise could accelerate exponentially in the coming decades, with a doubling time of 10, 20 or 40 years, respectively, raising the ocean by several meters in 50, 100 or 200 years. However, Greg Holland from the National Center for Atmospheric Research, who reviewed the study, noted: “There is no doubt that the sea level rise, within the IPCC, is a very conservative number, so the truth lies somewhere between IPCC and Jim. In addition, one 2017 study's scenario, assuming high fossil fuel use for combustion and strong economic growth during this century, projects sea level rise of up to 132 cm (4.3 ft) on average — and an extreme scenario with as much as 189 cm (6.2 ft), by 2100. This could mean rapid sea level rise of up to 19 mm (0.75 in) per year by the end of the century. The study also concluded that the Paris climate agreement emissions scenario, if met, would result in a median 52 cm (20 in) of sea level rise by 2100.

According to the Fourth (2017) National Climate Assessment (NCA) of the United States it is very likely sea level will rise between 30 and 130 cm (1.0–4.3 feet) in 2100 compared to the year 2000. A rise of 2.4 m (8 feet) is physically possible under a high emission scenario but the authors were unable to say how likely. This worst-case scenario can only come about with a large contribution from Antarctica; a region that is difficult to model.

In 2019, a study projected that in low emission scenario, sea level will rise 30 centimeters by 2050 and 69 centimeters by 2100, relative to the level in 2000. In high emission scenario, it will be 34 cm by 2050 and 111 cm by 2100. There is the probability that the rise will be beyond 2 metres by 2100 in the high emission scenario, which will cause displacement of 187 million people.

Globally tens of millions of people will be displaced in the latter decades of the century if greenhouse gases are not

reduced drastically. Many coastal areas have large population growth, which results in more people at risk from sea level rise. The rising seas pose both a direct risk: unprotected homes can be flooded, and indirect threats of higher storm surges, tsunamis and king tides. Asia has the largest population at risk from sea level with countries such as Bangladesh, China, India, Indonesia, and Vietnam having very densely populated coastal areas. The effects of displacement are very dependent on how successful governments will be in implementing defenses against the rising sea, with concerns for the poorest countries such as sub-Saharan countries and island nations.

Ten per cent of the world's population live in coastal areas that are less than 10 meters (33 ft) above sea level. Furthermore, two thirds of the world's cities with over five million people are located in these low-lying coastal areas. Future sea level rise could lead to potentially catastrophic difficulties for shore-based communities in the next centuries: for example, millions of people will be affected in cities such as Miami, Rio de Janeiro, Osaka and Shanghai if following the current trajectory of 3 °C (5.4 °F). The Egyptian city Alexandria faces a similar situation, where hundreds of thousands of people living in the low-lying areas may already have to be relocated in the coming decade. However, modest increases in sea level are likely to be offset when cities adapt by constructing sea walls or through relocating. Miami has been listed as "the number-one most vulnerable city worldwide" in terms of potential damage to property from storm-related flooding and sea-level rise.

Rising seas has also been tied to an increased risk from tsunamis, potentially affecting coastal cities in the Pacific and Atlantic Oceans.

Maldives, Tuvalu, and other low-lying countries are among the areas that are at the highest level of risk. At current rates, sea level would be high enough to make the Maldives uninhabitable

by 2100. Five of the Solomon Islands have disappeared due to the combined effects of sea level rise and stronger trade winds that were pushing water into the Western Pacific.

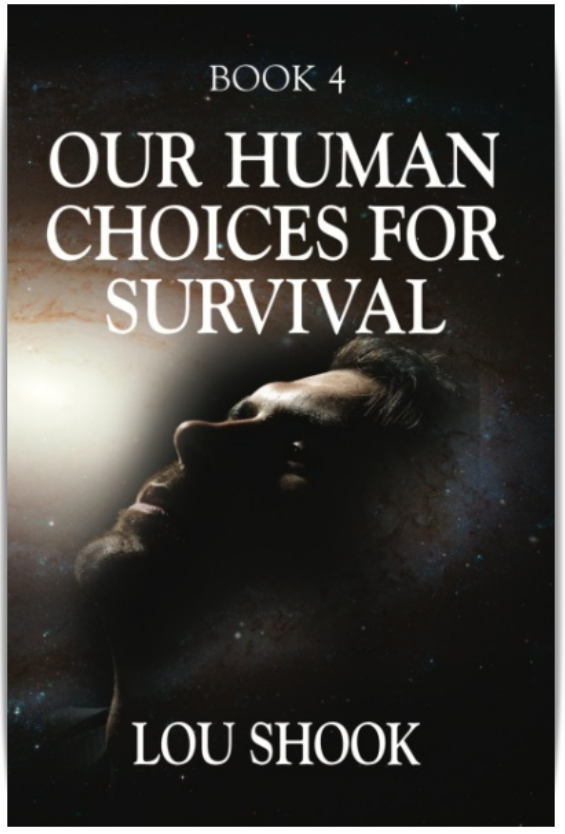
In 2016, it was reported that the Bramble Cay Melomys, will probably become extinct because of inundation due to sea level rises. This report was confirmed by the federal government of Australia when it declared the Bramble Cay Melomys extinct as of February 2019, making this species the first known mammal to go extinct as a result of sea level rise.

#

Following the publication of the Fourth Assessment Report of the IPCC in February 2007, a "Paris Call for Action" read out by French President Chirac and supported by 46 countries, called for the United Nations Environment Programme (UNEP) to be replaced by a new and more powerful United Nations Environment Organization, the United Nations Environment Organization (UNEO) to be modelled on the World Health Organization. The 52 countries included the European Union nations, but notably did not include the United States and BRIC (Brasil, Russia, India, and China), the top five emitters of greenhouse gases. Following the Paris Call for Action, the Group of Friends of the UNEO was set up and now has 52 States, bringing together, besides the European Union, countries from every geographical area, and many hope that a new administration in the United States will make the creation of a UNEO more likely.

The IPCC's Fifth Report released in 2014 states that relative to the average from year 1850 to 1900, global surface temperature change by the end of the 21st century is likely to exceed 1.5°C and may well exceed 2°C. Even if emissions were drastically reduced overnight, the warming process is irreversible because CO2 takes hundreds of years to break down, and global

temperatures will remain close to their highest level for at least the next 1,000 years. Records show that CO_2 concentrations in the atmosphere rose from 325 ppm in 1972, to over 400 ppm in 2015. Atmospheric concentrations of carbon dioxide, methane and nitrous oxide are higher than they have been for at least the last 800,000 years. In 2015, a study by Professor James Hansen of Columbia University and 16 other climate scientists said a sea level rise of three meters could be a reality by the end of the century. In 2018, Breakthrough released a report describing a climate change doomsday scenario by 2050 if we don't act soon. It said, “feedback cycles could push warming to 3C by 2050, making climate change a near to mid-term existential threat to human civilization”. It went on to say that "irreversible damage" is happening to global climate systems which may result "in a world of chaos where political panic is the norm and we are on a path facing the end of civilization".



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