



## Global warming: Environmental boon, pandemic or quagmire?

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### ABSTRACT

Global warming frightens even the baby in the womb. No one wants to be roasted by sunshine or swept off the earth by tsunami arising from extreme weather events. The sights of such events are frightening. Global warming is daily effects of human civilization. There are several controversies surrounding it. Some positive, while others are negative. Negative impacts means gain, while positive impact means loss. We need more negative than positive impacts for a safe world. This paper reviews the subject matter from the point of boon, pandemic or quagmire.

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### Introduction

There are significant variations across countries in how seriously they take environmental issues. These differences are correlated with wealth, domestic political pressures, regional political pressures, institutions and policy styles (Ward, 2001). However, there are growing awareness of the deterioration of the environment at global and regional level (Ward, 2001). Amongst these, is the issue of greenhouse effect and global warming (Baird, 2001). Even the baby in the womb know that greenhouse effect will affect climates around the world in the 21<sup>st</sup> century and beyond. In everyday language, greenhouse effect is understood as the increase in global air temperatures by several degrees as a result of the buildup of carbon dioxide and other greenhouse gases in the atmosphere. Many scientists believe that such global warming has been underway for some time, and is largely responsible for the temperature increase of about two-thirds of a degree Celsius that has occurred since 1860 (Baird, 2001).

The phenomenon of rapid global warming, with its demands for large-scale adjustments, is generally considered to be our most crucial worldwide environmental problem (Baird, 2001). Nevertheless, unlike stratospheric ozone depletion, which has manifested itself in spectacular fashion in the form of ozone hole, the phenomenon of global warming due to the greenhouse effect has yet to be observed in a fashion that convinces every one of its existence (Baird, 2001). Similarly, according to the author, no one is currently of the extent or timing of future temperature increases, nor is it likely that reliable predictions for individual regions will ever be available much in advance of the events in question. For the worker, if current models of the atmosphere are correct, significant global warming will occur in coming decades.

The widely accepted facts are that: average global temperature has risen by 0.6°C in the last 130 years. Secondly, carbon dioxide levels in the atmosphere have risen by about 25% in the last 200 years, increasing from about 280 parts per million (mg l<sup>-1</sup>) to 356 parts per million (mg l<sup>-1</sup>) today (NERC, 2001). According to the same National Environment Research Council, methane levels in the atmosphere have doubled over the last 100

years. Nitrous oxide levels are rising at about 0.25% each year. Carbon dioxide, methane and nitrous oxide are all greenhouse gases which trap radiation emitted from the earth's surface, keeping the earth warmer than it otherwise would be. Carbon dioxide, methane and nitrous oxide levels are rising mainly as a result of human activities connected with energy generation, transport and agriculture. The order of importance in contributing to human-induced global warming is carbon dioxide (70%), methane (20%), nitrous oxide plus other gases (10%). Temperature has not increased as much as you would expect from the observed carbon dioxide increase. It is thought that tiny particles in the atmosphere from, for instance, industrial activities or volcanic eruptions reflect sunlight and produce a cooling effect. A doubling of carbon dioxide levels would theoretically lead to an average global temperature rise of 1 - 2°C if all other factors remained the same. But in reality, other factors will also change in response to rising temperature and may produce feedbacks, some negative, some positive. For example, water vapour in the atmosphere increases as temperature rises and is itself a potent greenhouse gas.

The uncertainties reports by NERC (2001) are as follows: carbon moves between the atmosphere, where it occurs mainly as carbon dioxide, and all other parts of the environment – soil, vegetation, oceans, rocks and so on, forming the global carbon budget. Scientists are not sure what determines how much carbon is in which part of the earth's systems and the rate at which it moves between the parts. Again, temperature fluctuate annually and over much longer timescales associated with the natural variability of the climate. Accurate records using instruments have only been made for about a century. Past records are inferred from other evidence. Identifying small warming trends against this background variation is difficult. Solar radiation varies due to physical changes in the sun, the best known being the 11-year sun-spot cycle. Variations detected using satellites over the last 20 years are small, less than 1%. It is not clear, whether variations over a long timescale might be more significant and what effect any of this variation has on the warming of the earth.

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On the other hand, NERC (2001) uncertainties over climate feedbacks include: clouds can reflect incoming solar radiation back to space, keeping heat out. But clouds can also prevent radiation from the earth's surface escaping, thus keeping heat in. So the effects can be positive or negative depending on the height, temperature and reflecting properties of the clouds, all of which vary in time and from place to place. The effects of clouds are poorly understood and they remain one of the biggest uncertainties. A warmer atmosphere can hold more water vapour which is a powerful greenhouse gas, thus amplifying the warming by positive feedback. Plant growth may increase if carbon dioxide rises, thus absorbing more carbon from the atmosphere, which is a negative feedback. Polar ice sheets will melt to some extent as temperatures rise, but melting will be partially balanced by greater snowfall over polar areas. Arctic ice sheets will melt faster than snow will accumulate, therefore adding to sea level rises. But in the Antarctic, recent studies suggest that the interactions of the shelves (the parts of the Antarctic Ice Sheet which extend out over the ocean) with the waters beneath area complex, and that warmer temperatures will not necessarily result in thinner ice sheets and shelves in the southern hemisphere. Changes in the distribution of vegetation in warmer climates may alter the reflectance and thus the capacity of the earth to absorb heat. Less snow cover over the continents of the northern hemisphere in warmer conditions will mean more solar radiation absorbed by the darker surface.

The NERC (2001) reports on the uncertainties over flipping systems are as follows: Few of the systems in climate models are simple, as many of the factors listed above indicate. Doubled input does not necessarily lead to doubled output. One particular feature of complex systems is that under particular conditions, they may change abruptly and massively. Small incremental changes in one variable, such as the amount of a greenhouse gas, could trigger a switch response to a different state in one of the earth's systems. One example may be "El Nino", a periodic event in the Pacific Ocean in which sea temperature rise sharply on the eastern side and have a strong influence on the weather patterns throughout the world. It is not certain what sets off this sudden but quite natural change in ocean currents and movements of air. The Scientists also do not know such events may change in a warmer world. Another example may be the North Atlantic circulation system known as the "The Atlantic Conveyor Belt". This is a current system which carries warm surface water northwards and returns cold deep water to the south. It results in a transfer of free heat to the atmosphere equivalent to 30,000 times the power-generating capacity of the UK. This gives western Europe its present temperate climate. Disruptions to the system in the past have coincided with rapid transitions into and out of ice ages. Models, according to NERC (2001) show that disruptive could occur if more fresh water enters the Arctic Ocean as a result of global warming. This paper takes a look on global warming in the light of boon, pandemic or quagmire.

#### **Let the debate go on!**

Climate researchers still do not agree on whether the earth will become warmer during the coming century. Even more importantly, none of them expect the planet to get very much warmer in the foreseeable future. Scientists believe the earth is likely to warm by no more than 2 degrees Celsius during the next century (Hudson Institute, 1999). According to this institute, all the climate circulation models have cut their original warning forecasts at least in half, after satellite studies indicated that additional cloud cover would moderate any warming trend. Highly, accurate satellite data for the last 35

years (1980 – 2015) show a slight cooling of the atmosphere. Most of the one-half-degree centigrade of warming that has occurred in the last one hundred years took place before 1940, before humanity put very much carbon dioxide into the air. Thus, there is strong evidence that the two are unconnected. Research has produced a computerized climate model that accurately predict the weather the world has actually had. This more-accurate model projects only a 2 degree centigrade increase in temperature.

The minds of the world speak volumes. For Dennis. T. Avery (cited by Hudson Institute, 1999), global warming may be coming, but if it does, it won't be as extreme as previously thought. And it might actually be boon for the environment. For US Senate Majority Leader George Mitchell "a world on fire, 1999) cited also by Hudson Institute (1999), climate extremes would trigger meteorological chaos, raging hurricanes such as we have never seen, capable of killing millions of people, uncommonly long, record-breaking heat waves, and profound drought that could drive Africa and the entire Indian subcontinent over the edge into mass starvation. For H. L. Mencken, newspaper columnist, Baltimore Sun, 1925 (cited by Hudson Institute, 1999), the whole aim of practical politics is to keep the populace alarmed, and hence, clamorous to be led to safety, by menacing it with an endless series of hobgoblins, all of them imaginary.

#### **The medieval versus modern global warming: Two odd roads**

##### **Medieval global warming**

For Hudson Institute (1999), records, that may sound like a lot, but it isn't. To them, the world has experienced that much warming, and fairly recently in history. And we loved it!. Why?. Listen to Hudson Institute answers: Between 900 AD and 1300 AD, the earth warmed by some 4 to 7 degrees Fahrenheit, almost exactly what the models now predict for the twenty-first century. History books call it the Little Climate Optimum. Written and oral history tells us that the warming created one of the most favourable periods in human history. Crops were plentiful, death rates diminished, and trade and industry expanded, while art and architecture flourished.

The world's population experienced far less hunger. Food production surged because winters were milder and growing seasons longer. Human death rates declined, partly because of the decrease in hunger and partly because people spent less of their time huddled in damp, smoke-filled hovels that encouraged the growth and spread of tuberculosis and other infectious diseases.

Prosperity, fostered by the abundant crops and lower death rates, stimulated a huge outpouring of human creativity, in engineering, trade, architecture, religion, art and practical invention.

Soon after the year 1400, however, the good weather ended. The world dropped into the Little Ice Age, with harsher cold, fiercer storms, severe droughts, more crop failures, and more famines. According to climate historian, H. H. Lamb (cited by Hudson Institute, 1999), during this period, for much of the European continent, the poor were reduced to eating dogs, cats, and even children. The cold persisted until the 18<sup>th</sup> century.

The Little Climate Optimum was a boon for mankind and the environment alike. The Vikings discovered and settled Greenland around 950 AD. Greenland was then so warm that thousands of colonists supported themselves by pasturing cattle on what is now frozen tundra. During this great global warming, Europe built the looming castles, and soaring cathedrals that even today stun tourists with their size, beauty and engineering

excellence. These colossal buildings required the investment of millions of man-hours, which could be spared from farming because of the higher crop yields.

Europe's populations expanded from approximately forty million to sixty million during the Little Climate Optimum, the increase due almost entirely to lower death rates. Trade flourished, in part because there were fewer storms at sea and fewer muddy roads on land. There was more rainfall, but it evaporated more quickly.

Other beautiful narrations of the medieval boon according to Hudson Institute (1999) include: England being warm enough to support a wine industry. The Mediterranean Basin was wetter than today. Farming moved further north in Scandinavia, Russia, Manchuria, northern Japan, and North America. Farmers in Iceland grew oats and barley.

At the same time, technology flourished. The water mill, the windmill, coal, the spinning wheel, and soap entered daily life. Sailors developed the lateen sail, the rudder, and the compass. New iron-casting techniques led to better tools and weapons.

Real earnings in China reached their highest point in 3,000 years, thanks largely to the more-plentiful crops. There were half as many floods and one-fourth as many big droughts as in the Little Ice Age that followed. The increase in wealth produced a great flowering of art, literature and invention, the products of which we still enjoy and appreciate.

The Indian subcontinent prospered as well, producing colossal temples, beautiful sculptures, and elaborate art. The Khmer people built the huge temple complex at Angkor Wat. The Burmese built 13,000 temples at their capital, Pagan.

The Hudson Institute (1999) in their records admitted knowing less about what went on in the North America. However, they know that the Great Plains (everything about America – Great! Great! Great!. Incredible country indeed); the upper Mississippi Valley, and the Southwest apparently received more rainfall than they do now. The Anasazi civilization of the Southwest grew abundant irrigated crops, and then vanished when the Little Optimum ended and the rainfall declined. The Toltecs and Aztecs built marvelous civilizations in Mexican highlands that were plentifully watered.

Thus, according to Hudson Institute (1999), we can cast aside the forecasts that global warming will bring more drought and expanding deserts. Global warming brings more clouds and more rainfall, especially near the equator. That is what apparently happened during the Little Optimum. For instance, North Africa received more rain than today, and the Sahara, and presumably many other desert regions, shrank in response to the increase in rainfall.

There were some negatives, of course in Hudson Institute (1999) documentary. The steppes of Asia and parts of California apparently suffered dry periods during the medieval period. Also, it is important to remember that today's climate models are not precise enough to tell us anything about local rainfall in the future. The British global circulation model recently predicted that the Sahara Desert and Ireland would get exactly the same rainfall in the twenty-first century. That certainly is unlikely, according to Hudson Institute (1999) forecast.

#### **Agricultural Bonanza**

Listen to Hudson Institute (1999) thrilling account of the effects of global warming on agriculture. According to them, the medieval experience with global warming should reassure the world greatly, as the latest scientific evidence supports such optimism. It is clear, for example, that a planet earth with longer growing seasons, more rainfall, and higher carbon dioxide levels would be a "plant heaven". Modest warming would help crops,

not hinder them. There is virtually no place on earth too hot or humid to grow rice, cassava, sweet potatoes, or plantains, for example, and corn can be grown in a wider variety of climates than any other crop.

The prospective global warming, according to Hudson Institute (1999), will not be uniform. It is expected to moderate nighttime and winter low temperatures more than it raises daytime and summertime highs. Thus, it will produce relatively little added stress on crop plants or trees, and on people.

The expected increase in carbon dioxide will be an additional blessing according to Hudson Institute (1999). Carbon dioxide acts like fertilizer for plants. Dutch greenhouses, for example, routinely triple their carbon dioxide levels deliberately, and the crops respond with 20 – 40% yield increases. Extra carbon dioxide also helps plants use their water more efficiently. The "pores" or stomata on plant leaves partially close, and less water vapour escapes from inside the plants. More than a thousand experiments with 475 crop plant varieties in 29 separate countries, according to Hudson Institute (1999) report show that doubling the world's carbon dioxide would raise crop yields an average of 52%.

The amount of carbon dioxide in the atmosphere does seem to be rising, admits Hudson Institute (1999). In fact, the scientists admit we are nearly halfway to the expected carbon dioxide peak of 550 parts per million (milligramme per liter). The current levels of carbon dioxide in the earth's atmosphere are very low, however, compared to past periods. In fact, according to the scientists, most of the earth's species of plants and animals evolved in much-higher levels of carbon dioxide than we have today, up to twenty times the recent pre-industrial level of 280 ppm ( $\text{mg l}^{-1}$ ).

#### **Lush forests and prairies**

Hudson Institute (1999) reports that the increase in carbon dioxide will make forests all over the world healthier and more robust, and allow them to support more wildlife. Canadian forestry researchers estimate that in a new warming their forest growth would increase by 20%. In fact, the world's crops, forests, and soils may well be nature's "missing carbon sink". Hudson Institute (1999) emphasizes that not all human-produced carbon dioxide shows up in the atmosphere or is absorbed by the surface layers of the ocean, which suggests that it is being used by plants.

According to Hudson Institute (1999), it would put less stress on our wild species if the world always stayed at the same temperature, but the planet has never done that. Our "species models" mostly evolved in the Cambrian Period (six hundred-million years ago), and they have already survived several Ice Ages and hot spells.

Hudson Institute (1999) reports scientists examining the impact of global warming on wildlife species in the two most at-risk environments (tropical forests and the Arctic) as saying that they would expect a modest global warming to produce little or no species loss.

In global warming and biodiversity, for example, Dr Gary S. Hartshorn, cited by Hudson Institute (1999) asserts that the tropical forests already undergo enormous variability in rainfall. He writes "it is unlikely that higher temperature per se will be directly deleterious to tropical forest (wildlife) communities. Hartshorn also notes that although scientists previously estimated that number of wildlife species in the world at three to ten million, they had to change their estimate once they started counting tropical species. Now they estimate roughly thirty million species, with the overwhelming majority occupying the tropical rain forests. Thus, the negligible effect of global

warming on tropical forests bodes very well for the world's biodiversity.

In the same book, Dr Vera Alexander, quoted by Hudson Institute (1999) notes that Arctic marine systems would be seriously threatened if the sea ice melted. The Arctic, however, has already survived major temperature changes, including the Little Climate Optimum, without shrinking appreciably. Even with average worldwide temperatures six to nine degrees centigrade warmer than today's, Alexander notes, the sea ice would reform in the winter.

Assessing an Arctic tundra ecosystem, Dwight Billings and Kim Moreau Peterson (cited by Hudson Institute, 1999) predict that such a warming would have no major species impact. They expect more snow-free days in the summer, more photosynthesis, and somewhat more peat decomposition, but these factors would mainly benefit the primary food chain. Thus, the available evidence suggests that global warming will have little effect on Arctic species, according to these workers.

Hudson Institute (1999) notes that any wildlife species too fragile to survive this kind of mild warming probably disappeared from the planet several hundred years ago during the Little Climate Optimum.

#### **Decrease in disasters**

Listen to Hudson Institute (1999) narration on decreases in disasters arising from global warming. According to the scientists, most of the trillion-dollar estimates of global warming "costs" headlined in the 1980s were based on forecasts that cities such as New York and Bangladesh would be drowned under rising seas. In 1980, for example, some activists claimed that global warming would raise sea levels by twenty-five feet (76 meters). In 1985, a National Research Council Panel, according to Hudson Institute (1999) estimated a three-foot (0.91 meter) rise in the sea level. Those are frightening scenarios, but completely untrue, according to Hudson Institute (1999).

The Medieval Climate Optimum, according to Hudson, Institute did not produce devastating floods. Nor will a new global warming. It may seem paradoxical, but a modest warming in the polar regions will actually mean more arctic ice, not less. The polar ice caps depend on snowfall, and polar air is normally very cold and dry. If polar temperatures warm a few degrees, there will be more moisture in the air and more snowfall, and more polar ice.

The world's ocean levels, according to the Institute have been rising at approximately the same rate, 7 inches (178 millimeter or 1.78 centimeter) per century, for at least a thousand years. No one knows why, asserts Hudson Institute (1999). But, according to the scientists, data from the warming of 1900 – 1940 (40 years) show a drop in sea levels and then a sea-level rise during the subsequent cooler period. In 1992, *Science Magazine*, documented by Hudson Institute (1999) published a paper based on ice core studies suggesting that the projected warming would reduce the sea level by one foot (0.304 meters).

Global warming scaremongers in Hudson Institute (1999) language have also claimed that a warmer world would suffer more extreme weather events. According to the Institute, this too is unlikely. For them, records that the Little Optimum brought fewer floods and droughts abound. Hence, there is good reason to believe that this pattern would repeat in a new Little Optimum. Dr Fred Singer, Professor Emeritus of Environmental Sciences at the University of Virginia, as cited by Hudson Institute (1999) says "one would expect severe weather to be less frequent because of reduced equator-to-pole temperature gradients".

In other words, according to the Scientists of Hudson, the smaller the temperature difference between the North Pole and the equator, the milder the weather. Most of the warming, if it occurs, will be toward the poles, with very little increase near the equator. Thus, there would be less of the temperature difference that drives big storms.

Forging onward intrepidly, some alarmists have claimed that a warmer world would suffer huge increases in deaths from horrible plagues of malaria, yellow fever, and warm-climate diseases. One study, continued, Hudson Institute (1999) predicted fifty to eighty million more cases of malaria alone per year. Hudson estimates, there are now approximately five-hundred million new cases of malaria each year, and up to 2.7 million deaths.

Fortunately, these claims are unlikely to come true, says Hudson Scientists, because they ignore some important, fundamental realities. Such as global warming being slight near the equator and would only slightly expand the range of the malaria mosquitoes. Hence, according to their arguments, there is little reason to expect tropical plagues to increase naturally. Moreover, these diseases are nowhere near as relentless as the scare scenarios assume. In the US, for example, malaria and yellow fever once ranged from New Orleans to Chicago, argues Hudson Scientists. They conquered those diseases and not by changing the climate. They did it by suppressing mosquitoes, creating vaccines, and putting screens on doors, windows and porches. They recommended such measures for other countries. In their opinion, third world countries have had high disease rates because they were poor, and not because warm climates cannot be made safe. Thus, in their opinion, far from creating a plague of pestilences, the Little Climate Optimum engendered a worldwide population surge and set the stage for several historic invasions such as the Viking incursions into Normandy and England and the movement of German peoples into Eastern Europe. This time, however, global warming is quite unlikely to produce a population surge, argues Hudson Institute (1999). Their reasons are: world's population is currently restabilizing, thanks to affluence, urbanization and contraceptive technology. Births per woman in the Third World have fallen from 6.5 in 1960 to 3.1 today. The First World is already below the replacement level (2.1 births) and likely to stabilize at the modern equilibrium of about 1.7 births per woman. Warming or no, argues the Hudson Scientists, we can expect a peak population of approximately 8.5 billion people around 2035. That peak will be followed by a slow, gradual decline through the rest of the 21<sup>st</sup> century.

#### **Concerns for global warming**

The Hudson Institute (1999) quotes original global warming scare-stories as authored by eco-activists who have subsequently admitted that they were looking for ways to persuade people to live leaner lifestyles. To frighten us into lowering our living standards, they have announced a whole series of terrifying claims, most of which have already been proven wrong. The Hudson Scientists takes us into the following subjects.

#### **The population explosion**

Activists, reports Hudson Institute (1999) frequently warned us that the human population would reach 15 billion, or 50 billion, or whatever astronomical level would collapse the ecosystem. The Hudson Scientists, says this is wrong assertion, as affluence and contraceptives will give the world a peak population of 8.5 billion around the year 2035, followed by a slow decline in the late 21<sup>st</sup> century.

### Acid rain

Activists, reports Hudson Scientists, warned that acid rain from industrial pollution would destroy the forests in the First World. Nevertheless, a billion dollar worth of research has shown that acid rain is a very minor problem due mainly to natural factors.

### Cancer from pesticides

Hudson Institute (1999) are still looking for the first case of human cancer from pesticides residues. According to them, the National Research Council says that we will probably never find one. Moreover, as the National Research Council reports, “A sound recommendation for cancer prevention is to increase fruit and vegetable intake”. Thus, pesticides are actually helping cut cancer rates by producing more plentiful, affordable and attractive fruits and vegetables, argues Hudson Institute (1999). Incredible Scientists and Institute!

### The bombshell from Hudson Scientists

The Hudson Institute (1999) reports there is no reason to believe the authors of the global warming scares since they have no special knowledge about the future climate. According to these scientists, their lead scientist of the global warming mongers – Dr Stephen Schneider, was predicting global cooling just few years ago, and he candidly states that he is willing to misrepresent the facts if it will stir up the public over the “correct” causes. Scientists fight themselves more than the “Super Powers”. Incredible!; What a cold war!; US versus Soviet Union, indeed!. Hudson Scientists affirms that new climate models make it clear that he is wrong. Listen more to Hudson Institute (1999) account.

According to Hudson Scientists, the activists responded with the following question “But what if we’re right?”. Listen to Hudson scientists answer “History says they are not. And the problem is, the solutions, that the activists recommend, however well intended, would leave much of the world without an energy system, that will be deadly for both people and animals”. To Hudson scientists, if we were to triple the cost of coal, double the cost of oil, ban nuclear power, and tear out hydroelectric dams, which would be the result of the activists approach, humanity would essentially be left without energy. Solar and wind power, reports Hudson scientists are extremely expensive and undependable. Burning large amounts of renewable wood, according to them would destroy huge tracts of forest, and the animals that live there. Again, in a world of expensive energy, people would not be able to afford the window screens, latrines, clean water and refrigeration that prevent millions of deaths per year. Diarrhoea, due mainly to spoiled food and untreated water, is the number one child-killer on the planet. Refrigeration has helped cut stomach cancer rates by three-fourths in the First World, adds Hudson scientists.

Other arguments put up by Hudson Institute (1999) are: widespread poverty caused by expensive energy would reverse the current worldwide trend toward greater affluence, decreasing birth rates and better health. The low-energy option would destroy millions of square miles of wildlife habitat. High energy taxes would all but destroy modern agriculture, with its tractors and nitrogen fertilizer (produced mainly with natural gas). Shifting back to draft animals would mean clearing millions of additional acres of forest to feed the beasts of burden. Giving up nitrogen fertilizer would mean clearing five to six million square miles of forest to grow clover and other nitrogen-fixing “green manure” crops. The losses of wilderness would nearly equal the combined land area of the United States and Brazil. The debate goes on and on!

For Hudson Scientists, history and the emerging science of climatology tell us that we need not fear a return of the Little Climate Optimum. If there is any global warming in the 21<sup>st</sup> century, it will produce the kind of milder, more pleasant weather that marked the medieval Little Optimum, with the added benefit of more carbon dioxide in the atmosphere and therefore a more luxuriant natural environment. The modest global warming now predicted, according to the Hudson scientists should bring back one of the most pleasant and productive environments human and wildlife have ever enjoyed. To the scientists, we have nothing to fear but the fear-mongers themselves. These are controversial scientists. They failed to place Climate Change scientists of the whole wild world. Are they also part of the “controversial mongers”.

### Anyway, let the debate continue!

The Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate, in partnership with World Meteorological Organization (WMO) and United Nations Environmental Programme (UNEP) (2001) gave 1032 pages of Climate Change: Impacts, Adaptation and Vulnerability as updated by Climate Change 2015 on all realms of human life.

American Security Project (2015) writes thus “Climate change threats – they are serious and imminent. According to ASP (2015) Climate change is real and it is a direct challenge to American National Security. According to ASP (2015), we see the impacts of climate change every day, in US and around the world. A melting Arctic, unprecedented droughts across the world, extreme examples of flooding, and uncontrollable wildfires are all examples of the changing climate. These present a greater challenge than just new and different weather patterns: it is challenging the world’s security architecture to prepare for and adapt to new security challenges. The question for citizen and policy makers is how to effectively respond to these challenges. As citizens we owe it to our family, community and country to educate ourselves on the facts about climate change and how human activity is the primary cause. We also should appreciate that the responses to climate change – how we can effectively address the causes and effects – should not be glib or be PR stunts. Effective responses to climate change by their very nature will be complex and need to be framed over the medium and long term.

### AMERICAN SECURITY PROJECT



**American Security Project. Can this soften the heart of Hudson Institute Scientists, USA, and the whole world?. Time is ticking! Picture by American Security Project (2015)**

Furthermore, according to ASP (2015), in an effort to disrupt energy companies and further stigmatize them, movements around the world have been conceived around the notion of encouraging certain organizations and institutions to divest in oil and gas companies. The intended outcome from this divestment is to lead to a shift in the energy market, thus leading to renewed interest in renewable energies and decreased carbon emissions.

The majority of these divestment campaigns are aimed at universities and their respective investments with oil and energy companies. Although some of these campaigns have witnessed divestment in places abroad, like in the United Kingdom and Australia, the majority of academic institutions in the United States oppose the measure to divest.

These divestment coalitions, either student-led or backed by larger donors, have taken up the cause to university heads, demanding that this action be taken in order to mitigate the impact of climate change.

Our new report, according to ASP (2015), focuses on how effective these divestment campaigns has been and can be in the United States – on effectively combating the effects of global climate change.



**Our beautiful planet needs care and protection. Picture by Conservation International (2015)**

The research paper, according to ASP (2015), explores various solutions that aim to mitigate and eventually reverse the effects of our current accelerating climate change. To the workers, evidence shows that the global rise in temperature correlates with the increased emissions of CO<sub>2</sub> stemming from the beginning of the Industrial Revolution where levels were 40% lower. In the late 1800s, CO<sub>2</sub> concentrations were at about 285 ppm (parts per million), whereas in August 2012, levels were over 396 ppm, and have been increasing for the past decade at 2.0 ppm per year. Today, human activity is responsible for producing nearly 20 billion tons of carbon dioxide each year; a number that has more than quadrupled since the 1950s. The United States alone is the second largest producer of emissions, following China.

As climate change occurs, what we can expect to see, according to ASP (2015), is a variety of factors affecting the world at large. Climate change can lead to unseasonably cold or hot temperatures and drastic weather patterns that lead to drought or floods, which directly influence food and water availability. In parts of the world, like Asia and Africa, these effects are already apparent, and their impact on the local human population can be staggering. Where the United States is concerned, climate change poses three core national security

threats: global instability, military infrastructure and homeland security.

Conservation International (2015) writes “Effects of climate change – food, water and jobs will be impacted. According to CI (2015) our food system, our economies, our cities and our communities — they’re all adapted to the climate we currently live in. But what if the climate changes too fast for us to keep up? The fate of the one and only planet we’ve ever called home is uncertain. It is in everyone’s interest to come together to address the challenges we face. Why is our climate important? What are the issues?#1 source of human-caused emissions. Dependence on fossil fuels. The burning of fossil fuels is the #1 source of human-caused greenhouse gas emissions. If emissions continue to rise, we’ll be locked in to devastating rises in temperature. A more diversified, cleaner energy portfolio and increased energy efficiency are critical steps toward reducing our emissions. About 50% of the global population lives near the coast. The face vulnerable coast. Again, according to CI (2015), habitat destruction and land use changes are degrading and destroying wetlands and coastal forests — the natural buffers that help protect coastal areas against storm surges, rising sea levels and erosion. The 11% source of human-caused emissions is due to deforestation and land use change Massive amounts of carbon are stored in tropical forests. When we destroy these areas to clear land for ranches or farms, that carbon gets released into the atmosphere and accelerates climate change. Studies, according to CI (2015), show that deforestation accounts for 11% of all human-caused greenhouse gas emissions. Again, according to the authors, insufficient funding is another challenging area. Global contributions to climate finance fall severely short of what is needed — even though it would only take an estimated US\$ 70 billion per year (less than 0.1% of global GDP) to make the changes humanity needs to adapt to a warming world. CI’s solutions Scientists estimate that by 2050, we need to reduce worldwide emissions to at least half of their 1990 levels in order to avoid further harmful impacts from climate change. It’s an urgent challenge, and it requires an equally urgent response. Around the world, many of the most vulnerable communities are already struggling to cope with the impacts of climate change. CI has been pioneering ways to help communities adapt to challenges like rising sea levels, severe storms and more frequent flooding. They are also developing new ways of farming that support a healthy environment, minimize climate impacts and create a better quality of life for farmers. And, in addition to on-the-ground expertise and scientific know-how, CI offers practical recommendations that policymakers need to make smart decisions. These are CI (2015) recommendations on what we can individually and collectively do to save the planet. Reduce our energy consumption; look for energy efficient appliances, like ENERGY STAR products, that are independently certified to save energy. Take the pledge. Join thousands of others who have already committed to help protect the planet that provides every breath, every drop and every bite. Spread the word. Tell the world that the fate of the only planet we’ve ever called home is in our hands.

The Guardian (2015) writes on “Earth hour: millions will switch off lights around the world for climate action. A Congress woman claims climate change will turn women into prostitutes: Republicans face dilemma as climate change rises up political agenda. The details of the report as follows: The UN secretary general, Ban Ki-moon, has said hundreds of millions of Earth hour participants around the world will demand a strong global climate agreement by switching off their lights for an hour on Saturday night (28<sup>th</sup> March, 2015).



**Earth hour in picture 1. Joy Dominguez, 11, studies under a solar lamp. Picture by, The Guardian, UK Edition, 27<sup>th</sup> March, 2015**



**Earth hour in picture 2. Courtesy, Picture by The Guardian, UK Edition, 27<sup>th</sup> March, 2015**

Many of the world's brightest lights will go dark at 8:30pm (GMT) as Earth hour marks its ninth year. In a video address, Ban said the symbolic switching-off held more significance than ever, just nine months before a pivotal UN meeting on the climate crisis in Paris (December, 2015).



**Earth hour in pictures 3. The Houses of Parliament in central London with its lights switched off – honest – during Earth hour in 2009. Photograph: Lefteris Pitarakis/AP . Courtesy, The Guardian, UK Edition, 27<sup>th</sup> March, 2015**

"Climate change is a people problem. People cause climate change and people suffer from climate change. People can also solve climate change. This December in Paris, the United Nations is bringing nations together to agree a new, universal and meaningful climate agreement. It will be the culmination of a year of action on sustainable development," said Ban.

More than 7,000 cities in 172 countries are expected to take part in the world's largest ever demonstration, which has grown from a single World Wildlife Fund (WWF) event in Sydney in 2007. "Earth Hour shows what is possible when we unite in support of a cause: no individual action is too small, no collective vision is too big. This is the time to use your power," said Ban. Organisers said this year's demonstration would be the biggest yet. Sudhanshu Sarronwala, chair of Earth Hour global said: "Climate change is not just the issue of the hour, it's the

issue of our generation. The lights may go out for one hour, but the actions of millions throughout the year will inspire the solutions required to change climate change."

Some the world's most famous landmarks will turn their lights out. The UN building in New York will join London's Houses of Parliament, Rio de Janeiro's Cristo Redentor (Christ the Redeemer) and the Eiffel Tower in Paris. In Bulgaria a giant Danube sturgeon fish will be drawn in fire in the capital, Sofia. Millions of other, more humble, participants will take part by simply switching from electricity to candlelight for an hour.

Colin Butfield, director of campaigns at WWF-UK said the mass participation was a demand for climate action and politicians should take heed. "The fact that such a huge number of people are taking part in Earth Hour across the world and are using it as a moment to inspire action on sustainability in their own communities sends a really clear message that the public is ready to tackle climate change – we now need politicians to show the same drive," he said.

Britain's energy and climate change secretary, Ed Davey, who has been heavily involved in the climate negotiations at the UN, called for a response to climate change that was commensurate with its threat. "It's time for everyone to recognise that climate change will touch just about everything we do and everything we care about. Earth Hour is an excellent opportunity for millions of people across the world to take one simple step to show they're serious about backing action on climate change," said Davey.

Ban said the focus on climate change should not distract from Earth Hour's other key mission: introducing clean energy to the most remote and impoverished communities on Earth. "By turning out the lights we also highlight that more than a billion people lack access to electricity. Their future wellbeing requires access to clean, affordable energy," he said.

In 2014 Earth Hour used a crowdfunding platform to raise money and deliver thousands of fuel-efficient stoves to families in Madagascar and solar kits to remote villages in Uganda. The organisation also supplied islands in the Philippines with solar power for the first time and raised money for victims of Typhoon Haiyan.

Greenalliance (2014) collaborates the Guardian (2015) report by reporting on getting global agreement on climate change at Paris Summit in December, 2015, where 196 countries will meet to sign an ambitious outcomes that will have a real impact on tackling climate change; while Climate Action (2015), also carries the 2015 International agreement; where UN negotiations are underway to develop a new International Climate Change agreement that will cover all countries. CIWF (2015) question is "What is climate change?. Learn how your diet affects climate change and easy changes to make.

### Conclusions

Global warming is a problem of our civilization and we must live up to the reality. Just as we cannot live without products of civilization, so we cannot live without addressing the mess that comes from it. We cannot run away from the reality by fighting ourselves or by neglecting to act or pretending that all is normal or that environmental activists and some scientist are crying wolf! wolf! when there is no sheep. We cannot also afford to be wolf in sheep clothing, by pretending to be saving the planet, while being the number one destroyer. The Super Nations will not be free from climatic meltdown. Hence, concrete actions should not be sacrificed on the altar of politics. The addressing of climate change must not be seen as a tool for encouraging underdevelopment in the already developing and underdeveloped nations of the world. Rather, the developed

world should live and let live by avoiding sanctions, embargoes and quotas that undermine development of such countries in the name of climatic change.

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