



Climate Change Considerations, Carrying Capacity, and Ecological Overshoot

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"No one on this planet will be untouched by climate change."

--- Rajendra Pachauri, chair of the Intergovernmental Panel on Climate Change in 2014

In the beginning, the genesis of the moral good in human clans lay in behaviors and characteristics that were consistent with the greater good of the whole group. Natural selection, operating over countless generations, pruningly favors the most adaptive survival qualities in the long run. Throughout most of their 200,000-year-long hunting and gathering stage, human beings lived in clan groups, and relied on an adequate degree of cooperation and social cohesion within clans to survive and flourish. Over the millennia, especially during the 10,000-year-long Agricultural Revolution and then the 250-years of the Industrial Revolution, human social groups have become ever larger, growing from small clans to tribes to rural villages to towns and cities and eventually to feudal kingdoms and then nations and alliances of countries. Today, the necessity is growing for people to foster broader cooperation to achieve more vital goals, and for us to engage in global collaboration to ensure a more propitious destiny.

Social cohesion and civilizing influences have been important to human well-being, and both behavioral and cultural evolution have become increasingly important to the success and survival of human social groups as they grow in size. This is due to the fact that these qualities facilitate faster adaptation than is possible with the slow multi-generational process of genetic selection. Organizational and technological adaptivity has been extraordinary, allowing us to feed propagating billions of people and create critical institutions of civil society and fairer laws and providential infrastructure for clean drinking water, farm irrigation, sanitation and energy needs.

Fast forward to the here and now, and it can be seen that the vital importance of social cohesion is increasing, yet extreme political intransigence and internecine conflicts in America are causing social ties to fray so seriously that one observer declares that today's ideological, economic, political and culture wars make us more divided than at any time since the bloody Civil War. Why is there such depth of rancor and enmity? The reasons for this dangerous disintegration of social connectedness are many, including destabilizing national policies that are creating neo-Gilded Age increases in extremes of inequality. The 2020 pandemic and Donald Trump's policies, priorities and desperate efforts to cling to power have made this situation drastically worse.

In addition, indulgences in greedily materialistic status-seeking impulses are having the effect of torpedoing fair-minded Golden Rule reciprocity, and people seeking windfall wealth and overriding advantages are getting away with succeeding at these perverse achievements by fomenting riskily excessive political partisanship, and by hyping up hostilities, grievances and divisive feelings between people. Frustration, anger and resentment are arising in reaction to economic injustices, harmful inequalities, unfair labor policies, hot button culture war wedge issues and the ethical requirements associated with civilizing influences. As a consequence, intolerance is escalating and unrest is brewing, violent discord is becoming more likely and an international surge of far-right self-righteous religious fundamentalism and terrorism are making it harder to achieve peaceable coexistence.

One thing, however, is perfectly clear. We would be wise to build consensus and work together to achieve greater good goals, because looming threats to our overall security and well-being and even survival have become global in scope. This overarching existential exigency for better social cohesion is becoming increasingly urgent, and yet deep fractures exist across America and around the world that are being exacerbated by polarizing issues,

scheming dividers, and fear mongering scapegoating despotic anti-immigrant demagogues.

One of the most contentious issues we face relates to climate change considerations and the risks and possible responses to the destabilizing impacts of greenhouse gas emissions on the global climate. For humanity as a whole, this issue is surely one of the most consequential ever.

The vast majority of scientific experts who study the physics of climate processes and such stuff are warning that risks are mounting. They are doing this with a surprisingly high degree of certainty and remarkable degree of unanimity. The evidence is growing conclusive that normal patterns of temperatures and precipitation and storms are changing in places around the world. Normal amounts of rain result in marvelously emerald green hills in January through April in northern Mediterranean climates. In stark contrast to the providential bounty of a stable climate with "normal" rainfall, hundreds of millions of people are experiencing increasingly frequent, extreme and destructive floods or harsh droughts. Such conditions, coupled with record high temperatures, are occurring in many places, and severe storms, destructive hurricanes, epic floods, unusually intense wildfires, and even bizarre cold snaps and heavy snowfalls are taking place in other areas.

These intensifying weather conditions corroborate the predictions made by scientists in many disciplines that a build-up of greenhouse gases in the atmosphere will cause increasingly extreme climate conditions. Additionally, low-lying islands and coastal areas are beginning to be flooded by rising seas. These developments are being accompanied by the marked diminishing of doubts about whether climate change is being caused by human activities, because the increasing concentration of carbon dioxide in the atmosphere has tracked closely to the huge quantities of this greenhouse gas generated by the burning of fossil fuels, as measured continuously ever since 1958 at the Mauna Loa Observatory high up on the remote Mauna Loa volcano on the Big Island of Hawaii.

Throughout recorded history, necessity has often been the mother of invention. Today, ecological disruptions being caused by changing weather patterns represent an existential challenge that can be regarded as the mother of future necessity. We must recognize the kernels of really inconvenient truths contained in the trenchant observation made by Jay Inslee, Governor of the state of Washington: "We are the first generation to feel the effects of climate change, and the last generation that can do something about it."

The central focus of this essay is an evaluation of the extents to which we humans are living in unsustainable ways on planet Earth. A concomitant purpose is to make accurate assessments of best ideas for providentially addressing the challenges that are arising as we alter the global climate and deplete natural resources, pollute the commons, overuse and contaminate fresh water sources, harm ecosystems, and contribute to the decimation of wildlife, all while exacerbating inequities, perpetuating injustices and undermining the common good.

Pope Francis made a religious case for tackling climate change in May 2015, speaking to a large crowd from his Vatican balcony just a few weeks before he issued a forceful encyclical on climate change. He called on his fellow Christians to become "Custodians of Creation", arguing that respect for the "beauty of nature and the grandeur of the cosmos" is a Christian value. He also noted that failure to care for the planet risks apocalyptic consequences, warning that global climate change is going to have increasingly catastrophic impacts. "Safeguard Creation," he declared. "Because if we destroy Creation, Creation will destroy us! Never forget this!" And learn this now, "conservatives"! Stop letting money and irresponsible profiteering trump the common good.

Pope Francis centered his environmental protection theology around the biblical creation story in the book of Genesis where God is said to have created the world and declared it to be "good", and charged humanity with its care. The Pope also made reference to his namesake, Saint Francis of Assisi, who was famously a lover of animals, and Pope Francis tied the ongoing environmental crisis to economic concerns and the excessive exploitation of people and the planet by a wealthy minority. And he emphasized the social injustices that these trends create, to the especially harsh detriment of the poor and the downtrodden. Jesus Christ!

"Creation is not a property, which we can rule over at will; or, even less, is the property of only a few: Creation is a gift, it is a wonderful gift that God has given us, so that we care for it and we use it for the benefit of all, always with great respect and gratitude," Francis said. The Pope also stated that humanity's destruction of the planet is a sinful act, curiously calling it "self-idolatry". Soon after his Vatican address, Pope Francis issued his landmark

ecological encyclical on climate change in June 2015. In it, he made a strong moral case for the need to mobilize people of faith and others into action to take serious steps to mitigate climate disruption.

One reason Pope Francis has been calling for climate action as a moral imperative is because the perilous effects of global warming will be most devastating for poor people and those in vulnerable developing countries, who happen to be contributing the least to factors driving climate change. Surely, smarter and fairer policies are needed to achieve truer environmental and social justice. All developed countries should make much bigger contributions to the Green Climate Fund to mitigate the impacts of climate injustices, and the USA should be foremost among them, because it has been responsible more than any other country for the build-up of greenhouse gases in the atmosphere since the beginning of the Industrial Revolution.

Bizarrely contrary to these sensible understandings, Donald Trump has taken the suspicious stand that climate change is a hoax. Ha! Well, they say a sense of humor is born of good perspective, and bears a near kinship to philosophy, "each being the soul of the other", so it is appropriate here to refer readers to a funny perspective contained in an ironic and ecologically astute political cartoon. In this cartoon, created by Pulitzer Prize-winning cartoonist Joel Pett, the absurdity of the "debate" over climate action and protections of the environment is cogently encapsulated. A lecturer at a global Climate Summit meeting is shown presenting a flipchart list of the numerous compelling advantages of far-reaching actions needed to preserve a habitable, healthy and sustainable world, and a cartoonish skeptical crank in the audience shouted out:

"What if it's a big hoax, and we create a better world for nothing?" Yes, well, WHAT IF?!

Anote Tong, former president of the Pacific Island nation of Kiribati, was the subject of a good documentary film, *Anote's Ark*, that told of his struggle to find a haven for his people, whose home islands are going to be submersed in the sea in coming decades and centuries as greenhouse gases increasingly contribute to sea level rises caused by thermal expansion of sea water and the accelerating melting of glaciers, ice sheets and polar ice caps. A compassionate audience attending the film gave a standing ovation to Anote Tong as he bookended an on-stage discussion with blessings in the tradition of the Kiribati people. He spoke compellingly about his personal drive to communicate his message: "Climate change is about people ... we must understand that it's about our future as a species. It's about each one of us making a decision about our human values."

Right understandings of true climate justice reveal that rich nations have prospered by wastefully engaging in carbon intensive uses of fossil fuels, so they are responsible for most of the carbon dioxide spewed into the atmosphere in the past 100 years. It was just about a century ago that the concentration of carbon dioxide in Earth's atmosphere first reached 300 ppm, up from a pre-industrial normal of 285 ppm. Then it first exceeded 400 ppm in 2013, and in the annual peak days of May 2020, it reached a sobering 417 ppm.

There is a moral obligation for those who have helped doom island nations to very high costs associated with climate disruptions and sea level rises to accept responsibility for their obligations and contribute larger amounts to the Green Climate Fund, which was established in 1992 in the international environmental treaty in the United Nations Framework Convention on Climate Change. The purpose of this fund is to assist developing countries in making mitigation efforts to counter the impacts of climate change, and to invest in taking adaptive measures. The United States must not hubristically stint on its obligations to contribute more appropriately and generously to this fund, for that would be to shirk its responsibilities.

By pulling the U.S. out of the Paris Accords, Trump arrogantly rejected the social justice stipulations in the agreement that require countries that have been most responsible for spewing the biggest volumes of greenhouse gases into the atmosphere to contribute more money to covering the costs of mitigation and adaptation to changes in the global climate and sea levels.

These perspectives make Trump's decision to withdraw from the Paris climate agreement look really arrogant, greedy and foolish. Even stupid.

"... there is no better word than stupid. Right?"

--- Donald Trump, December 2015

Ice Age glaciers once covered North America, gouging out deep depressions in the landscape. When these glaciers melted about 10,000 years ago, the Great Lakes were created. Glacial ice also covered the area where New York City lies today with an ice sheet a thousand feet deep, and the area where Yosemite National Park exists was under glaciers several thousand feet in depth. As the Yosemite glaciers slowly moved downwards, they carved out extraordinary U-shaped valleys from the solid granite. The sea level during the last Ice Age was about 300 feet lower than it is today, due to so much water being locked up in continental ice sheets and glaciers. How much colder was it for so much ice to have accumulated? Scientists estimate the average temperature around the globe was just 5 degrees Fahrenheit colder than today. Now, as global warming threatens to add another 5 degrees to today's temperatures within a century or so, these temperature changes will likely cause sea levels to rise dramatically and cause severe flooding, as well as weather extremes that will wreak terrible harms and adversities on countless numbers of people. These changes could result in more than 100 million environmental refugees during this century alone, and it could spell extinction for thousands of species of plants and animals.

The best plan would be to strive reasonably and honorably to propitiously alter these risk-filled trends! We must implement big incentives to motivate people and corporations to do the right thing. And we must throw the scheming politicians out of power who are driving this insanity.

Philosophic Understandings

Jared Diamond is a Pulitzer Prize-winning author who wrote the compelling book *Collapse, How Societies Choose to Fail or Succeed*. In this thought-provoking compendium of big picture perspectives, Professor Diamond reveals findings made from his study of many civilizations throughout the long course of human history. He concludes that we humans must pay particular attention to long-term thinking to ensure our prosperity and survival, and indicates that we should courageously champion anticipatory long-term planning in order to create a sustainable future. He states that we should make bold plans "at a time when problems have become perceptible but before they have reached crisis proportions." Jared Diamond further expresses the conviction that we must be willing to reconsider core values that once served society well, at a point when those values are becoming detrimental due to deteriorating environmental conditions or changing circumstances.

Robert F. Kennedy once pointed out the false dichotomy "between economic prosperity on the one hand and environmental protection on the other." He noted ruefully that we are treating the planet as if it were "a business in liquidation" by striving to convert natural resources to cash as quickly as possible. It would be a vastly better plan to treat the Earth AS A GOING CONCERN. To do this, we need to find ways to use natural capital at a sustainable rate, and to prevent the externalizing of costs onto people in the future. "Environmental injury is deficit spending", Kennedy said. "It's a way of loading the cost of our generation's prosperity onto the backs of our children."

This false dichotomy between the economy and the environment has been used by market fundamentalists to assert that farsighted environmental action will "kill jobs" if regulatory limits are put on businesses. This deceitful falsehood has become a feature of "new-right orthodoxy." One side effect of this rash new form of deficit spending is that it compounds the serious state of borrowing that has driven an increase in the national debt in the U.S. from less than \$1 trillion in 1981 to a real burdensome and risk-laden excess of \$27 trillion in December 2020.

"For me, it is far better to grasp the Universe as it really is than to persist in delusion, however satisfying and reassuring."

--- Carl Sagan, *The Demon-Haunted World: Science as a Candle in the Dark*

A sustainability advocate named Bob Willard made a convincing point in an article titled *CO2: Why 450 ppm is Dangerous and 350 ppm is Safe*. He stated: "When threatened by terrorist bombings, countries declared a War on Terror. When threatened by rampant drug addiction, countries declared a War on Drugs. Climate change is biggest threat ever faced by humanity. Isn't it time we declared a War on Climate Destabilization?"

Naomi Klein offers a modern caution in her book *This Changes Everything: Capitalism vs. The Climate*. She explores the overarching problem of why the climate crisis challenges us to abandon the core "free market" ideology of our time, and to restructure the global economy and remake our rigged political systems to ensure that they are fairer

and more sensibly aligned with long-run considerations. "In short, either we embrace radical change ourselves, or radical changes will be visited upon our physical world. The status quo is no longer an option."

A cogently compelling and ecologically incisive cartoon by Justin Bilicki shows a scientist holding a clipboard containing a sheath of papers labeled FACTS, and he is gesturing to a big whiteboard that has written on it:

RESEARCH CONCLUDES:

**WE ARE
DESTROYING
EARTH**

In this cartoon, two old men in suits are speaking to the scientist, and one carries a *Government* briefcase overstuffed with cash. He is asking the scientist:

COULD YOU KINDLY REPHRASE THAT IN
EQUIVOCAL, INACCURATE, VAGUE, SELF-
SERVING AND ROUNDABOUT TERMS
THAT WE CAN ALL UNDERSTAND?

Let's listen to scientists and experts from the American Association for the Advancement of Science, the world's largest general scientific society, which serves 250 affiliated societies and academies of science and engineering worldwide. This respectable international non-profit organization has 120,000 members representing 10 million individuals, and has great integrity. It declares in *What We Know*: "As scientists, it is not our role to tell people what they should do or must believe about the rising threat of climate change. But we consider it to be our responsibility as professionals to ensure, to the best of our ability, that people understand what we know: human-caused climate change is happening, and we face risks of abrupt, unpredictable and potentially irreversible changes -- and responding now will lower the risk and cost of taking action." Let's just do it!

Incisive Insights

It is foolhardy and unacceptably shortsighted to encourage rapid exploitation and depletion of mineral and fossil fuel resources. Many Americans accept such misguided predations, and here is the main reason why. Deep-pocketed special interests contribute large sums of money to spread propaganda that tells us that the best path forward is to hyper-stimulate the economy "to create jobs, jobs, jobs." and to cut regulations. Huge profits are being made through this gambit, and an ungodly proportion of the profits are being monopolized by the wealthiest 1%, who provide lavish funding to propagate these plans and this shrewd spin. Rich people are thereby demonstrating incredible hubris in demanding fewer restrictions on their extractive activities -- and more and more cheap public natural resources and tax breaks for themselves -- financed, stupidly, by increases in public debt.

It is starkly avaricious, and a wrongheaded tragedy of the commons, for financial elites to push such a national agenda. The consequences of this folly will prove to be exceedingly costly and destabilizing, and harsh. It will be as if Mother Nature is morphing into an angry, implacably judgmental, deeply disappointed, punitive and scary malevolent male *God*, like a modern incarnation of the one envisioned in the Old Testament of the Bible.

We humans are mindlessly messing with Mother Nature, inadvertently destabilizing the planetary climate system and its polar vortex and jet stream. It's as if we are compulsively poking an angry beast -- yet we seem deterministically incapable of altering our habits to save ourselves and our species from the wrathful impacts of increasingly powerful storms and extreme temperatures, floods, droughts and wildfires.

One main reason these circumstances prevail is due to voter suppression and contorted gerrymandering of congressional districts and the whole litany of illegitimate means employed by the Few to reinforce and expand their illicit advantages. For starters, realize this: the devious slogan "Drain the Swamp" was a con job. The riggers of our economy and the anti-democratic despots in our political system were eager and ready to use this ruse to ramp up their success and take further rude advantage in ripping off and oppressing *We the People*.

Look how clear a measure we have of how corrupt our political system is, due to extreme gerrymandering and the

rest of the long litany of ways that Republicans have managed to abuse influence to gain domineering power. Hillary Clinton got almost 3 million votes more than Donald Trump nationwide, but lost. Republican candidates for seats in the House of Representatives got only 49% of the votes in the 2016 elections, but won 55% of the races, giving them a domineering 241 to 194-seat advantage for two years. Corruption incarnate!

Think about it. The only way Republicans could have achieved this lopsided dominance of Congress is by having broadly cheated, with a powerful assist from "conservatives" on the Supreme Court, who actually put their partisan ideology-rooted convictions into words in their wrongly decided *Citizens United* ruling that allows unlimited money to be spent by corporations and rich people on elections. Justice Anthony Kennedy rationalized this decision in his written majority opinion, asserting that "independent expenditures do not lead to, or create the appearance of, *quid pro quo* corruption." No appearance of corruption whatsoever? Wow, if "ignorance is bliss, they must be ecstatic!" And they should be thrown out of office in disgrace.

The renowned writer Upton Sinclair famously said more than 80 years ago that it is difficult to get someone to understand something when their wages depend on not understanding it. This helps explain why Republican politicians in Texas and Louisiana and other such places, which have numerous highly polluting oil refineries and chemical industry sites, are able to sell their corporate-friendly deregulatory propaganda and wealth-pandering regressive taxation schemes to the masses, even though the impacts on people's health are horrific.

Imagine if, instead of capitulating to vested interests to let them externalize costs and monopolize the profits made by extracting fossil fuels, the American people were to demand and get a fairer share of the profits made through resource exploitation and depletion activities. A first step would be to significantly increase the amount we sell public-owned natural resources on public lands for, which has been a paltry 12.5 percent since 1920. Another way to achieve this would be to adopt an "Alaska for America" plan that would utilize revenue from natural resources to pay an annual dividend to every American. This idea is inspired by Alaska's creation of a Permanent Fund that distributes some of the state's oil royalties to citizens of the state every year.

Millions of Americans faithfully believe that prophecy in the Bible says End Times are a-comin', and that great signs and portents are being given by God of these approaching end days. They point to all the wild weather, terrifying hurricanes, floods, earthquakes, volcanic activity, global turmoil, apostasy, liberalism, "Beast Government" and drug abuse in the world today. Many of these folks believe these are signs that reveal a "Rapture" is going to take place soon, in which there will be a Second Coming of Jesus to redeem all believers, and that God will mystically transport them to a beautiful and peaceful heaven place in the sky -- and that all others will be mercilessly and vindictively smitten with a terrible fate for their wickedness in not believing, perhaps in a burning hell. These faithful folks even have a Rapture Index website that serves as a "prophetic speedometer" to assess the rate of approach of this vindicating event. It contains 45 odd categories that measure how close we supposedly are to End Times coming to pass.

History will prove that a prophesied End Times Rapture will not occur, but that if we allow leaders to mislead us and to myopically deplete resources, amplify global warming, profit by socializing externalized costs, deny scientific facts, pit people against each other, indoctrinate the citizenry with false understandings, and undermine prospects for future well-being, there will be hell to pay, and the fate of humanity and life on Earth will be to suffer horribly and unnecessarily for these expediently short-term oriented foolhardy schemes.

The brilliant and acerbic social critic Voltaire was a French philosopher who used wit-infused invective to ridicule and condemn irrational preposterous beliefs and superstitious thought, religious fanaticism, prejudiced intolerance and abuses of power by dogmatic church authorities and corrupt institutions. He saw the terrible potential pitfalls of the mutual reinforcement between established religions and oppressive government, and he vituperatively criticized the dangers of willful ignorance and denial. And today, we are seeing how manipulative schemers who claim to be principled conservatives are deceiving the people, often in the name of God, to advance a dangerously shortsighted and criminally self-serving agenda that places top priority on maximizing profits for the Few -- at an unbelievably dire cost to the Many, today and in all future generations.

Prophets of End Times are foolishly whistling in the wind, for the Earth has been orbiting the Sun for billions of years and will continue to do so for billions more. Humankind would be wise, however, to see clearly that human

activities are causing a mass extinction event of life on Earth, which could come to rival the terrible biotic calamities of the Permian Extinction and the Cretaceous Extinction eons ago. We should clearly realize that this ominous development is a canary in the coal mine singing out to us, telling us we should take adequately far-sighted actions to mitigate threats posed by our activities, in aggregate, to our own flourishing and survival.

My online Sustainability Index provides a comprehensive big picture assessment of where we stand at this moment in time with regard to making the ultimately necessary transition from unsustainable ways of living to a more salubrious and positively adaptive course that will allow us to continue to exist for an indefinitely sustainable future. Like the Rapture Index, this Sustainability Index features 45 measures that provide a "prophetic speedometer" of how we are doing in approaching future developments. Unlike the Rapture Index, these 45 parameters are not based on superstition, preposterous biases and bizarre supposed correlations, but rather on how our aggregate activities are affecting the basic underpinnings of a healthy existence.

The Practical Reasons for Social Insurance Policies

People in the U.S. spend hundreds of billions of dollars annually on insurance policies to protect themselves from personal losses. They buy home insurance to cover losses from fires or storms or flooding, and car insurance to cover damages due to accidents, personal injuries or liability. But when it comes to our home planet, we seem to be collectively unwilling to invest more adequately in ecological insurance policies to protect ourselves and our descendants from Tragedy of the Commons outcomes like resource depletion, the ecological degradation of habitats, and natural disasters exacerbated by climate change.

We should institute a carbon-fee-and-dividend program and create new ecological insurance policies that are progressively structured so that they offset the surging risks of social desperation, for desperate people do desperate things like eating the seed corn during a famine. Statistics on rapidly worsening shortages of fresh water around the globe are leading indicators telling us that our heirs are going to face some increasingly desperate times, fraught with internecine conflicts, and thus precautionary policies are strongly advised.

The big reason we don't invest enough in ecological insurance policies is because the majority of people on Earth can't afford the costs, and the wealthiest 1% of people in the world are jealously opposed to paying more, despite their radically heavier ecological footprints. Let's change this calculus!

We must promote a more progressive system of insuring a more propitious future by creating a robust new way of getting the superrich to provide some of their huge hoards of money to help achieve common good goals. Capitalizing on this big fresh infusion of funds, intelligent investments should be made in the long-term greater good; otherwise the money is destined to be stashed in the excessively padded bank accounts of the wealthy.

In the marketplace of good ideas, perspectives consonant with the greater good are often drowned out by deceptive right-wing advocacy groups and dishonest skills for money-prepossessed corporations that use hyper-amplified megaphones to espouse and promote ideas inimically contrary to the common good. The collateral disadvantage of allowing undue influence to ideological deceptions is that they are extremely unfair to younger generations and those yet to be born, and their proponents tend to be fundamentally uncompromising, divisive, greedy, shortsighted and excessively anti-egalitarian. Salient examples of such ideologies are the trickle-down theory, which is deeply discredited by facts and evidence, and our system that allows shareholders to receive maximized profits by socializing costs. We should roundly reject doctrines that undermine reasonable protections of the environment and brazenly facilitate the spending of unlimited amounts of money to indoctrinate the public with false understandings, while corrupting our politics, in order to hijack our national decision-making.

The Obtusely Rash Hubris of the Rich

The main persons responsible for establishing an economic or social condition turn out to be those who gain the lion's share of the profits and privileges from that state of affairs. Check out the insights in this manifesto online in *The Top Ten Ways Our System Is Unfairly Rigged*, and in *The Fourteen Worst Ways that Powerful People Abuse Power*. And review the sensational details revealed about these existentially important topics in the essays *The Con Goes On: A Triumphant Coup by Crooked Conniving Crony Capitalists*, and in *Demagoguery and the Dangers of the Demise of Democracy*.

After Donald Trump declared in June 2017 that he would withdraw the U.S. from the Paris Climate Agreement, a stark contrast was revealed between greater good goals and executive hubris in championing short-term profit making. Trump's unilateral decision to abdicate responsibility for taking sensible climate action provoked ripples of deservedly harsh condemnation around the globe. I heartily encourage all Americans to renounce this anti-cooperative and immorally irresponsible crusade for allowing costs to be externalized. Instead, lend your support to the mayors, governors and corporations that are joining together to affirm commitments to reduce emissions of greenhouse gases, despite Trump's bizarre, foresight deficient, wrongheaded, arrogantly greed-driven, power abusing and consequentially harmful stand.

Remembering that a fairer degree of social cohesion is crucially important to peaceable coexistence within our societies, it is shocking to see that our politics is so severely impacted by the dynamics of elites who jealously lord their power over the masses. There is a strange degree of social pathos underlying relationships between members of wealthy elites and the vast majority of other Americans. With increasing inequalities and injustices becoming dangerously exaggerated, it becomes clear that we need a stronger social safety net as a good insurance policy to ensure peaceable coexistence and a healthier and safer society. But wealthy people are abusing the influence of their money and power by manifesting an increasingly stubborn unwillingness to help finance such smart and fair-minded social programs.

"Stand and deliver!" thundered thieves who were robbing the passengers of a stagecoach in which Mark Twain was riding in the new state of Nevada in 1866. Though it turned out to be a robbery-by-gunpoint prank by his friends, those words reverberate in my imagination. To rich people today, I say, "Stand and deliver! Be more willing to invest in a greater modicum of social safety net insurance policies, and stop waging a war on the poor by shredding the social safety net to help pay for tax cuts for the rich."

Michael Lind, a policy director for the Economic Growth Program at the New America Foundation, argues that the rich in America act as if they no longer need the rest of America. They earn their fortunes to a large extent with overseas labor, and sell to overseas consumers, and often rely on immigrant laborers in their homes and in many businesses.

A surprising poll done by the Russell Sage Foundation finds that "elites" -- defined as people in the top 1% of income in the U.S. -- have perspectives and priorities that differ radically from the majority. Many of these elites want to cut spending on Medicare, Medicaid, Social Security and sensible protections of the environment. In distinct contrast, a significant majority of Americans favors increased spending on these things, and also on supporting a wide range of other programs that elites tend to oppose. But since money talks, our national policies and decision-making and lawmaking are powerfully skewed to conform to the desires of the wealthy.

To prevent Big Money corruption of our politics, it would be a good plan to limit individual and corporate contributions by ratifying a Constitutional Amendment to stop giving undue influence to wealthy people and corporations, as proposed by the Move to Amend coalition. Republican politicians staunchly oppose such action, and champion ever-riskier policies that increase inequality in America and the world. This makes them appear to despise democracy, judging by this opposition and the widespread efforts Republicans make to pander to the rich and hijack people's emotions in crudely manipulative and consequentially harmful ways. And then there is the evidence of their actions targeted to prevent millions of people from voting, and shrewdly engaged in extreme gerrymandering of congressional districts.

Above an op-ed article by Robert Frank, a headline in the *Wall Street Journal* asked: "Do the Rich Need the Rest of America?" The answer to this question "is as stark as it is ominous": Many rich people do not think they do. They form their own financial culture that increasingly seems to separate them from the fate of everyone else, so "it is hardly surprising that so many of them should be so hostile to paying taxes to support the social programs and infrastructure that help the majority of the American people."

You would think rich persons might care, if not from empathy, then from an understanding of history. Ultimately, gross inequality and enabling political corruption can be fatal to civilization. In his book *Collapse: How Societies Choose to Fail or Succeed*, Professor Jared Diamond writes about how, throughout history, governing elites tend to isolate and delude themselves until it is too late. Diamond warns that societies contain built-in blueprints for

failure when their elites are able to insulate themselves from the consequences of their decisions and separate themselves from the common life of the people.

According to the *New York Times*, just 158 families donated nearly HALF of the early money in the 2016 presidential race. When a handful of wealthy people can spend hundreds of millions of dollars to buy elections, our democracy is not functioning properly. That's why we need to do everything we can to stop the corrosive influence of billionaires, and reverse the disastrous effects of the Supreme Court's *Citizens United* ruling.

Jared Diamond reminds us that the main factors in the decline of many cultures throughout history has been the damages people have inflicted on their providential environment. As an example, he cites the Mayan natives on the Yucatan peninsula who suffered as their forests disappeared and soil eroded and water supply deteriorated, and chronic warfare exhausted dwindling resources. The Mayan kings could see their forests vanishing and their hills eroding, yet they continued to extract wealth from commoners and remained well-fed while everyone else was slowly starving. They were able to insulate themselves from the rest of their society, but realized too late that they could not stop the deterioration of their environment. They thus became casualties of their own privilege, and contributed to the collapse of their civilization.

In an even larger perspective, human beings have an anthropocentric view of the universe in which we humans are the Few, and all of the rest of life constitute the Many. In this larger context, our obligations are even greater. Humanity cannot merely have a ruthless, heedless and uncaring dominion over everything else on Earth. We must honestly embrace a responsible stewardship and respect for the foundations of our well-being, and for the biological diversity of life on Earth and the health of the ecosystems upon which we depend.

We could do better, far better, with the will to accomplish this goal. Yes, a peaceful revolution is called for. Privileged classes stand in our way, corrupting our politics. Let's unite to fight this good fight, and demand much better governance, not meekly continue to let the tyranny of corporate entities and Big Money and scheming "conservatives" dominate our national policies. Our collective obligation seems clear. Let's courageously take arms against this sea of troubles, and by opposing, end them!

The History of Environmental Protection

Consider this riff from my essay *Amazing Disgrace*:

The early history of efforts to protect the environment in our democratic republic was remarkably bipartisan. Theodore Roosevelt, a Republican, was one of the greatest presidents ever for his laudable efforts to establish protections of public lands and the environment. After he became president early in the 20th century, he sought to protect America's national resources from the greed of exploitive business entities, and one of his signature accomplishments during his time in office was to conserve the nation's forests and fresh water resources and wildlife habitats. His conservation convictions were so strong that he succeeded in having 230 million acres of land set aside to be protected for the public in the form of five National Parks, 150 national forests, more than 50 federal game preserves and bird sanctuaries, 18 national monuments and 24 fresh water reclamation projects.

Then in the 1960s and 1970s, truly broad bipartisan leadership helped enact all the bedrock environmental laws, including the Wilderness Act, the Clean Air Act, the Clean Water Act, the National Environmental Policy Act and the Endangered Species Act. In the book *Getting to Green*, written by political independent Frederic Rich, the author explains that a "Great Estrangement" began, starting in the 1980s, when staunch conservatives began a hard tack to the right and the Green movement drifted to the left. The sad result was that environmental issues underwent a disastrous transformation "from common cause to divisive wedge." And in the past 25 years, federal spending on environmental protections and conservation has been significantly reduced. The status in 2020: Shockingly worse! And dumbfounding in its backwards impulse.

Frederic Rich provides a balanced assessment and makes a good case in *Getting to Green* that bold and effective climate action is a stark necessity, and that a bipartisan consensus must be reached to achieve this goal. He argues somewhat convincingly that this Great Estrangement will not end with "conservative capitulation to the compelling urgency of the Green agenda; instead, the Green movement will need to listen to conservatives, take a few steps in

their direction, and focus on that space where the values of right and left overlap." Rich calls this potentially auspicious zone "Center Green". This zone, he writes, "takes as its model the national land trust movement, a corner of the environmental movement that has succeeded in maintaining vigorous bipartisan support. Center Green is a modest change in approach rooted in the way America is, not a utopian vision of what it could become. It is, above all, pragmatic and not ideological, where policy is measured not by whether it is the optimum solution, but by the two-part test of whether it would make a meaningful contribution to solving an environmental problem and whether it is achievable politically."

Human-caused climate disruptions are among the most far-reaching global impacts that humanity has ever had. Climate scientists are the farsighted prophets of today, and they warn us that there is a high probability that a large part of the world's glaciers and ice sheets will melt if the trend of increasing emissions of carbon dioxide and methane continues unchecked. This will lead to more extreme climate events and disastrously rising sea levels, posing big problems for food and water availability for growing numbers of human beings. In worst-case scenarios, feedback loops within the climate system could lead to abrupt changes in the global climate by releasing enormous quantities of methane from the thawing of Arctic permafrost. This would disrupt ocean currents or cause other cascading environmental calamities. These are risks, according to the Pentagon, that could function as "threat multipliers" that would destabilize countries and create large numbers of climate refugees, and possibly compromise our national security in drastic ways. We should heed these warnings, and act appropriately to mitigate these risks by committing more money to pay for the spiking costs for recovery from natural disasters and climate change mitigation efforts and adaptation measures.

Henry Paulson, the former Secretary of the Treasury during George W. Bush's time as president, made astute observations in a June 2014 article titled *The Coming Climate Crash: Lessons for Climate Change in the 2008 Recession*. He wrote: "We need to act now, even though there is much disagreement, including from members of my own Republican Party, on how to address this issue while remaining economically competitive. They're right to consider the economic implications. But we must not lose sight of the profound economic risks of doing nothing. The solution can be a fundamentally conservative one that will empower the marketplace to find the most efficient response. We can do this by putting a price on emissions of carbon dioxide -- a carbon tax. Few in the U.S. now pay to emit this potent greenhouse gas into the atmosphere we all share. Putting a price on emissions will create incentives to develop new and cleaner energy technologies."

For further illumination and the full text of Hank Paulson's article, see Postscript One of this *Climate Change Considerations* essay in Book Eight of the Earth Manifesto (or online). And consider the idea that H.G. Wells once sagely articulated: "Civilization is in a race between education and catastrophe. Let us learn the truth, and spread it as far and wide as our circumstances allow. For the truth is the greatest weapon we have."

Marvelously, there are good solutions to daunting dilemmas like climate change that confront us. The idea of putting a higher price on carbon emissions through a fee-and-dividend plan, for instance, would create powerful incentives for resource conservation, and for finding more efficient conservation-oriented ways to use fossil fuels. This would spark innovation and rapidly advance the development of cleaner alternative energy sources. This carbon fee should be designed to generate large amounts of money that would be used to pay for adverse impacts of gaseous emissions on millions of people's respiratory health, and to help cover the costs of natural disasters caused by climate change impacts of intensifying storms, droughts, wildfires and coastal flooding.

A carbon fee would be an effective mechanism to internalize costs that are currently being externalized. Such a system could be structured in non-regressive and highly egalitarian ways that would be fair to the majority of Americans, including people living in poverty and those struggling in the middle class. In a fee-and-dividend plan, for instance, all citizens would receive dividends generated from carbon taxes every year. Such a plan would also be vastly fairer to people in future generations because it would slow the depletion of fossil fuel resources and reduce the culminating harm we are doing to natural ecosystems by failing to rein in emissions.

James Hansen and the Citizens Climate Lobby are strong proponents of such a smart fee-and-dividend incentive system. It is an idea that is consistent with the insightful observations of Paul Hawken, author of the thought-

provoking book *The Ecology of Commerce*, who points the optimal way for how we should be working to make our societies better:

"To create an enduring society, we will need a system of commerce and production where each and every act is inherently sustainable and restorative. Just as every action in an industrial society leads to environmental degradation, regardless of intention, we must design a system where the opposite is true, where doing good is like falling off a log, where the natural, everyday acts of work and life accumulate into a better world as a matter of course, not as a matter of conscious altruism."

Giving Respect to Our Beautiful Home Planet

French photographer Yann Arthus-Bertrand published a beautiful large-format book of aerial photographs titled *Earth from Above* that featured a photo of an evocative heart-shaped mangrove forest in New Caledonia on the cover of the third edition in 2005, and it contains a sensational text with a powerful ecological message. Then in 2009 he produced *Home*, the phenomenal documentary film that contains some of the most beautiful aerial footage ever assembled of our home planet. The film is narrated by Glenn Close, and it can be seen online on YouTube (it is 93 minutes long).

Here is how the film begins: "Listen to me, please. You're like me, a *Homo sapiens*, a wise human. Life, a miracle in the Universe, appeared around 4 billion years ago and we humans only 200,000 years ago. Yet we have succeeded in disrupting the balance that is so essential to life. Listen carefully to this extraordinary story -- which is yours -- and decide what you want to do with it."

If you toggle to minute 53:40, and watch for two minutes, you will find yourself flying in over the Pacific Ocean toward Rapa Nui, also known as Easter Island, and you will see a line of 15 of those renowned monolithic volcanic stone statues known as moai ("mow-eye"). Here is what Glenn Close says as viewers fly in over the coast of Easter Island: "Here's one theory of the story of the Rapanui, the inhabitants of Easter Island, that could perhaps give us pause for thought. Living on the most isolated island in the world, the Rapanui exploited their resources until there was nothing left. Their civilization did not survive. On these lands stood the highest palm trees in the world. They have disappeared. The Rapanui chopped them all down for lumber. They then had to face widespread soil erosion. The Rapanui could no longer go fishing, as there were no trees to build canoes. And yet the Rapanui formed one of the most brilliant civilizations in the Pacific, innovative farmers, sculptors, exceptional navigators. They were caught in a vice of overpopulation and dwindling resources. They experienced social unrest, revolt and famine. Many did not survive the cataclysm."

"The real mystery of Easter Island is not how the extreme statues got there -- we know now -- it's why the Rapanui did not react in time. It's only one of a number of theories, but it has particular relevance to us today. Since 1950, the world's population has almost tripled, and since 1950, we have more fundamentally altered our island Earth than in all of our 200,000-year history."

A more recent theory adds another revealing piece of the puzzle about the causes of collapse of civilization on Easter Island. The courageous Polynesian natives who had originally crossed 1,200 miles of open ocean and settled on this 64 square mile island had brought chickens with them for food -- and also large Polynesian rats, either as a potential food source or as inadvertent stowaways. The rats found the island to be a paradise because of the nutritious fruits of the native palm trees. It is now thought that the eventual extinction of the native palms that contributed to the demise of the Rapanui civilization may have been caused by a concatenation of two impacts: (1) the Polynesian settlers cut down the trees for their houses, their canoes, and their use to transport hundreds of huge stone statues from their quarry in an old volcano to points around the island; and (2) evidence indicates that the rats that arrived on the original settlers' sea-going canoes likely proliferated so that they ate too many of the fruits of these now extinct palm trees. Since these fruits contained a hard nut similar to a miniature coconut, which the trees naturally needed to propagate the species, the rats contributed to the eventual extinction of the crucially valuable trees.

The original Rapa Nui stone monoliths were iconic and mysteriously stoic, and their enigmatic expressions were a form of worship and aggrandizing of their Rapa Nui ancestors. These larger-than-life volcanic stone statues on

Easter Island were inscrutable and inward looking, their backs to the sea. I imagine them gazing mirthlessly over our shoulders today, mutely witnessing our mindless depletion of resources, as if they have a detached omniscience like that of Mother Nature, though with infinitely less influence. These idols are holding their judgment mute, but probably wondering what the hell has gotten into these foresight-deficient new generations.

The ominous rapid increases in our human population are surely unsustainable, just as they proved to be on Easter Island when the population crashed from a high of something like 12,000 in the year 1600 to maybe 2,000 a century later. Introduced diseases from European sailors and Peruvian slave raiders is said to have further reduced the native population to only about 100 people by the late 1800s.

Mainstream economics today postulates endless growth as the solution to almost every problem. But as the gains of economic growth become ever-more concentrated in the hands of the few, the idea that endless growth is a good plan becomes a much more dubious proposition, especially in light of the fact that stoked growth comes at a high price to all. I've got a sneaking suspicion that the primitive iconic inward-looking volcanic stone statues on Easter Island would look askance at our ominously rapid increases in human numbers, especially in countries of Africa, since they are surely unsupportable and unsustainable. More funding should be committed to the United Nations Population Fund, not less!

A vision arises again in my imagination of those iconic stone statues on Easter Island, which were mounted on large stone platforms facing away from the sea. In my vision, the statues are now looking outward to the expansive and shining sea, contemplating the countless numbers of human beings yet to be born. And, in one of the most astonishing accords in the entire span of human existence, I imagine every single one of these human beings in future generations urging each person alive today to heed the Promethean foresight-informed insights conveyed in this manifesto. The overarching message being conveyed in this stoic stone stare needs to be interpreted properly, for it is a matter for utmost attention and broadest possible concern in the here and now.

The statues seem to have etched in their mute memory the knowledge of the fate of the Rapanui's civilization on Easter Island, along with a vital awareness of the fate of humanity on Earth that is yet to be told. Curiously, this fate is not yet written in stone, and it is a malleable fate that will be influenced and determined by every action and behavior and habit and predilection of each and every human being as the future ceaselessly lapses into the past, ever present, now and forevermore, and features humankind struggling to adapt to the changing demographic, ecological and biotic conditions on the planet.

Capitalism and Politics

To the average American, government is a bureaucratic monster that is represented by the taxman, the police, an extremely expensive military, and authorities enforcing generally unfairly skewed justice. Governments are run by often corrupt politicians who pander to giant corporations and profligately squander public funds, making them seem like obtuse, unaccountable and irresponsible behemoths. In contrast, big government represents a potential cash cow to insiders and fat cats, and a lady of easy virtue that can be easily manipulated to gain big benefits. Governments are bureaucratic institutions that can give established interest groups big profits in good times and then bail them out when inevitable days of reckoning arrive. Taking advantage of this, wealthy people use their money to subvert our political system to gain excessive influence and engineer huge perks for themselves, often creating periodic economic hard times for the masses.

Scheming politicians then exploit the frustrations and anger of voters at the corrupt nature of our politics, in order to gain further advantages by stirring up resentments, prejudices, suspicion, paranoia and vitriol. They utilize negative attack ads on television and micro-targeting of misinformation on social media to advance ideological causes in too often successful efforts to get the populace to elect candidates who are complicit with these hard times swindles. When so-called conservative politicians get elected, they in particular are prone to abusing their power to perpetuate unethical scams and prevent remedial change. To ensure this system keeps working for them, they stoke religion-fueled social conservatism to gain support, especially in the Bible Belt, and then they use their power to enact an unrelated economic agenda that primarily benefits millionaires and billionaires. It's a shrewd system, and it works like a cunning and nefarious charm.

Here is an astonishing perspective from one of our Founding Fathers, attributed to James Madison: "We are free today substantially, but the day will come when our Republic will be an impossibility. It will be an impossibility because wealth will be concentrated in the hands of the few. A Republic cannot stand upon bayonets, and when the day comes ... we must rely upon the wisdom of the best elements in the country to readjust the laws of the nation to the changed conditions."

Andrew Sullivan shared some insights in *America Has Never Been So Ripe for Tyranny*, stirring up an evocative echo in my memory, and I feel great hope for a resurgence of sanity and common sense as Noam Chomsky sounds a warning bell, compellingly alerting us to the realization that concentrated wealth and power are antithetical to democratic governance and individual liberties and intelligent decision-making: "Concentration of wealth leads almost reflexively to concentration of political power, which in turn then translates into legislation naturally in the interests of those implementing it. That accelerates what has been a vicious cycle, leading to ... bitterness, anger and frustration ..." Some remedies are clear from the diagnosis!

Anti-establishment sentiments have grown strong, as reflected in the powerful support given to the presidential candidates in 2016, both Bernie Sanders and Donald Trump. There is good reason for this. As experts perceptively concluded, the U.S. has become an oligarchy controlled by the few, and the preferences of economic elites and organized interest groups are dominating our national decision-making, while the average American appears to have "only a minuscule, near-zero, statistically non-significant impact upon public policy."

This state of affairs is contributing to a consequentially misguided skewing of our national priorities that is highly detrimental to the best interests of the vast majority of Americans -- and dangerous to the prospects of all human beings in the future. As a result, instead of putting good governance ahead of politics, what prevails is extremely polarized partisanship, and rancor between rival tribal camps, torpedoing the common good.

Extreme partisan paralysis serves economic elites in our political duopoly system by allowing profits to continue to have much higher priority than people. This is a main way that partisans facilitate giving pursuits of power and privilege more importance than common good goals. Ideology has become a more important determining factor than honorable and fair-minded principle, and divisive strategies are taking precedence over real efforts to find collaborative solutions to big challenges.

To succeed in solving the most important challenges, we must recognize the urgency of the problems and come together to solve them. It is a consequentially sad story that our political system has become so contentious and oppositional that environmental protections have been given very low priority by conservatives, and global warming has become an ultimate wedge issue, and the Green movement has stalled out in making progress on the most important environmental issues.

"Oh, the presumptuous, rash ignorance of mankind! "

--- Galileo

One of the worst failings of capitalist economics is that it encourages "externalities", according to Professor William Nordhaus in *The Climate Casino: Risk, Uncertainty, and Economics for a Warming World*. These are externalities "in which those who produce greenhouse gas emissions do not directly pay for that privilege, and those who are harmed are not compensated." For any climate change mitigation policy to be effective it must raise the market price of emissions of greenhouse gases, including both carbon dioxide and methane. "A central lesson of economic history," Nordhaus observes, "is the power of incentives. To slow climate change, the incentive must be for everyone -- millions of firms and billions of people spending trillions of dollars -- to increasingly replace their current fossil-fuel-driven consumption with lower-carbon activities. The most effective incentive is a high price for carbon."

Another failing of capitalist economics is the degree that it discounts the well-being of everyone in the future. "Discounting" is an important concept for evaluating the economic costs of climate change and the trade-offs involved in spending money today to prevent damages that will result from climate disruptions in the future. This is a complex issue that involves decisions about how much to discount benefits in the future relative to costs incurred today. But suffice it to say here that we should give greater consideration to the precautionary societal values of

safeguarding the prospects of people in the future by conserving natural resources, protecting ecosystems and fostering the sustainability of services they provide for future well-being.

People tend to discount the value to almost zero for any human being that may live on planet Earth after the year 2050. That is ultimately wrong! We need to shift to a low-carbon economic growth model and increase our resilience to climate risk to put ourselves on a path to a more sustainable future. A side benefit of such planning will be to create many new jobs and make the world healthier and safer by shifting some parts of the economy away from fossil fuels. Right now we're on an unsustainable path that will lead to economic instability and staggering costs in future years, and we need to alter that path.

Pope Francis has expressed blistering criticism of capitalism in the 21st century, and he has voiced skepticism about giving free rein to market forces. He has also questioned the current day obsession with consumerism and cautioned about the costs of unchecked growth. As John Fowles wrote in *The Aristos*, back in 1970:

"A capitalist society conditions its members to envy and be envied; but this conditioning is a form of movement; and the movement will be out of the capitalist society into a better one. I am not saying, as Karl Marx did, that capitalism contains the seeds of its own destruction. I am saying that capitalism contains the seeds of its own transformation. And it is *high time* the capitalist system starts to nurture those seeds."

Most people are faced with a veritable maelstrom of competing challenges, so they see climate change as only one distant problem, and they are driven by emergency needs and obligations and habits and advertising-stimulated motives, so they are not focused on demanding that their leaders take bold steps to avert climate catastrophes. "It is, of course, perfectly understandable," writes Seamus McGraw in *Betting the Farm on a Drought*, "that people tend to cluster in almost tribal groups when faced with issues that are so multifaceted and so complex, so full of nuance and uncertainty, every element of them fraught with both promise and peril."

Katharine Hayhoe is both an atmospheric scientist and an evangelical Christian, and she clearly sees the need for science and faith to be complementary, rather than to conflict with each other. Hayhoe says that perhaps the biggest risk we face is that we are being paralyzed into inaction on climate change issues by cultivated doubts, propagated misunderstandings, hyped up fears, ideological stubbornness, greed-driven indifference, polarizing partisanship and those who demonize others. Deception and demagoguery are also big hurdles.

Think about this. Many concerns have been expressed about the increasingly probable apocalyptic consequences of human activities over the long term, ranging from alarmed to concerned to cautious to skeptical to dismissive. On the one hand, we cannot allow reasonable cause for alarm to prevent us from being hopeful and taking courageous actions to mitigate the risks of climate change. On the other hand, we sure can't afford to deny growing risks when such denials likely make looming problems much worse. And we should appreciate the perceptive point of view expressed by the wise and equanimous Dalai Lama, who once observed: "In order to accomplish important goals, we need an appreciation of the sense of urgency."

Extreme weather events in the U.S. have cost American families, businesses and taxpayers more than \$500 billion in the last five years, including the costs of catastrophic hurricanes in southern states and Puerto Rico and the Virgin Islands. One need not be an accountant to know it is folly to squander assets instead of investing in earning a sustainable stream of income to finance operations and yield profits.

Oscar-winning filmmaker Charles Ferguson directed the outstanding film *Inside Job* concerning the financial crisis that began in 2008, and then he wrote the sensational book *Predator Nation: Corporate Criminals, Political Corruption, and the Hijacking of America*. Then in 2015 he turned his incisive attention to the complicated dilemmas associated with climate change, creating another excellent film titled *Time to Choose*. In this documentary, he commendably emphasized the global nature of challenges caused by growing emissions of greenhouse gases. *Time to Choose* underscores many environmental abuses carried out in China, Brazil, Nigeria, Indonesia and the coal producing areas of Appalachia. Ferguson filmed all over the world, and his spectacular cinematography poignantly reveals what is being lost as fossil fuel extraction and carbon emissions cause disruptions in temperature and precipitation patterns in locales around the world. He also proposes good solutions in the film, in addition to making clear what perils we face if we do not act to mitigate climate change.

Donald Trump pandered to the profit-prepossessed climate denial crowd during his campaign by simple-mindedly saying, "The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive." And for years it has been a popular talking point for many conservative politicians to use the rhetorical dodge of proclaiming, "I am not a scientist", and stubbornly denying that human activities could be in any way responsible for increasingly frequent incidences of extreme weather events. It seems clear that politicians say this to avoid admitting they are deeply beholden to vested interests like the industrialist network of Koch billionaires and executives in fossil fuel industries, when they should instead be championing the greater good of humanity, today and in the future.

I had to chuckle to myself when the thought came into my mind how revealing it is that NOT A SINGLE POLITICIAN who has used the "I'm not a scientist" evasion has ever admitted, "I'm not an economist." Yet they proclaim with absolute conviction that God's own floodgates of providential trickle-down goodness will start flowing sometime soon if we just stick to a top national priority of cutting taxes to benefit people who have the highest incomes and most capital gains, and if we reduce estate taxes on the richest two-tenths of one percent of Americans who have enough wealth to owe any inheritance taxes at all after they die. These pandering politicians have good cause for their faith in this doctrine, for it is more sure than a divine revelation that stubbornly sticking to regressive taxation schemes results in Big Bucks gushing up into their personal election campaign war chests. It's a genuine win-win for them, and for rich people. For everyone else? These rash follies, financed by borrowing trillions of dollars from every future taxpayer, are an unmitigated disaster!

Such policies lead to spiking amounts of deficit spending and record high levels of national debt, along with increasingly urgent calls for austerity policies. This hurts tens of millions of Americans, and society as a whole, and the health of our democracy. These misbegotten priorities particularly harm poor people and those in the middle class, and old people and young people, thereby seriously undermining the vitally important quality of social cohesion. And they will wreak even worse hardships on everyone in future generations.

There are downstream as well as upstream effects of many decisions, so a good understanding of the impacts that result from decisions is valuable to figure out how to create win-win solutions. Good leadership requires "grounded inspiration", according to Birchbox co-founder Katia Beauchamp, "where you use data and experience as a springboard for decision, but not as a rule of law."

Mark Twain penned these incisive words in his Letter to J. H. Twichell in January 1901: "This nation is like all the others that have been spewed upon the earth -- ready to shout for any cause that will tickle its vanity or fill its pocket. What a hell of a heaven it will be when they get all these hypocrites assembled there!"

Gus Speth, a co-founder of the respectable National Resources Defense Council and long-time Dean of the Yale School of Forestry and Environmental Studies, articulated a fascinating perspective at a large gathering of evangelical leaders in rural Georgia back in 2009. At this meeting, known as the *Thomasville Rebellion*, he said. "Thirty years ago, I thought that with enough good science, we would be able to solve the environmental crisis. I was wrong. I used to think the greatest problems threatening the planet were pollution, biodiversity loss and climate change. I was wrong there too. I now believe that the greatest problems are pride, apathy and greed. Because that's what's keeping us from solving the environmental problem. For that, I now see that we need a cultural and spiritual transformation. And we in the scientific community don't know how to do that. But you evangelicals do. We need your help."

Some ethical evangelicals are beginning to recognize their misplaced allegiance, and this is one reason that the evangelical "creation care" organization Interfaith Power and Light was created to provide hope for a new day in which overarching ecological moral imperatives will gain sway. Most unfortunately, millions of evangelicals conservatives have in effect collaborated with Big Business in a really unholy alliance, siding with politicians who give lip service to hot button social issues that evangelicals care passionately about, but mainly focus on exploiting the support they get from rich donors to reward them with trillions of dollars in tax cuts for corporations and the people with the highest incomes and the most wealth.

It is a great story that a realization is unfolding that we have a moral imperative to protect the natural world from the onslaught of human exploitation and degradation. This extraordinary new force is finally arising to

counterbalance the domineering and misguiding influence of the political right and the religious right, and to offset the manipulative influence of nefarious front groups like ALEC -- the American Legislative Exchange Council -- that strive to undermine protections of the environment and oppose responsible efforts to mitigate the damages and risks of climate-disrupting global warming.

Hallelujah for the interconnected coalition of evangelical folks from many different faiths that has laudably created organizations like Interfaith Power and Light to unite people who believe it is crucially important to protect creation. Pope Francis gave this creation care movement support in his encyclical that advocates for bold climate action. Sadly, Donald Trump's self-promoting decision to withdraw the U.S. from the Paris Climate Agreement was a stance against fair-mindedness and Pope Francis' understanding, and it was made to give Big Oil and Big Coal more latitude to profit by polluting and foisting costs onto society and all people in the future.

A virtuous force has the moral rectitude to begin counterbalancing the excessive influence of authorities in the religious right who have seemingly sold their souls in a Faustian bargain with the devil by giving uncompromising support to right-wing causes. Valid criticisms of the Christian right come from many who call for a more caring and connected society, and these folks mainly focus on social responsibility and true justice. It is an ugly stain on evangelicals that they overwhelmingly voted for Trump because of his reactionary stances on gay rights and abortion. They are in effect willing to sacrifice creation and the environment to cling to their prejudices.

Professor Robert Reich wrote a scathing editorial in September 2015 about how an economy depends fundamentally on public morality -- "shared standards about what sorts of activities are impermissible because they so fundamentally violate trust that they threaten to undermine the social fabric." Curiously, many Republican presidential candidates and state legislators at the time were furiously focusing on private morality -- on contraception, abortion, same-sex marriage, what people do in the privacy of their bedrooms, and legislation concerning voting rights and basic rights for women and gay people and minorities -- while at the same time our country was experiencing a far more significant crisis in public morality.

He pointed out some of the serious ramifications of the juxtaposed crisis in public morality, like the fact that CEOs of big corporations are earning more than 300 times the average wages of all workers. He indicated that "insider trading is endemic on Wall Street, where hedge fund and private-equity moguls are taking home hundreds of millions, and a handful of extraordinarily wealthy people are investing unprecedented sums in the upcoming election, seeking to rig the economy for their benefit even more than it's already rigged." And a few extraordinarily wealthy people are investing unprecedented sums in currying favor with scheming politicians, seeking to rig the economy for their own selfish benefit even more than it's already rigged. Meanwhile, average wages of workers continue to languish as jobs are off-shored or off-loaded onto independent contractors.

Theologian Michael Lerner gave an evocative summary of ethical conundrums like this, and added an interesting twist: "The unholy alliance of the Political Right and the Religious Right threatens to destroy the America we love. It also threatens to generate a revulsion against God and religion by identifying them with militarism, ecological irresponsibility, fundamentalist antagonism to science and rational thought, and insensitivity to the needs of the poor and the powerless."

Naomi Klein offers hope that the people she has connected with in the growing climate justice movement could lead us "to see all kinds of ways that climate change could become a catalyzing force for positive change." Let the catalysis proceed, helping to prevent cataclysm!

Too Many People?

Extreme weather events are just one aspect of what increasingly appears to be human population overshoot. Increasingly ominous evidence indicates that human numbers are exceeding the carrying capacity of Earth's ecosystems to sustain us, due to both overpopulation and overconsumption of natural resources. Stuningly, there has been a net increase in the total human population in excess of 70 million people each and every year since 1965. Every year from 2010 through 2018, this net increase in the world's population has been 82 million people or more - - the highest annual increments since 1994. Given this context, staunch opposition to family planning and the use of contraceptives is downright dumb. Rather than being fruitful and multiplying without limit, we should instead

cultivate a wiser mathematical calculation: we should Go Forth and Add! After all, it is dangerously unwise to harm the providential ecosystems upon which we rely, and to thus reduce the carrying capacity of the Earth for humankind at the same time that our population continues its unsustainable global increases. We simply must become much better stewards of creation!

Further evidence of population overshoot is found in a startling study completed by the World Wildlife Fund. In its Living Planet Report 2018, the results of a detailed analysis are adduced that show a shocking decrease of a startling 60% in the populations of more than 10,000 representative species of mammals, reptiles, birds, amphibians and fish on our home planet since 1970. More than 75% of the populations of freshwater species have astoundingly been lost in this short period of time, along with about 40% of the numbers of both marine and terrestrial species. The main factors contributing to this dire development are mankind's reckless damaging of Earth's vital habitats because of our voracious exploitation of natural resources. The 2016 Report stated:

"Our current global situation is that since the 1970s, humanity has been in ecological overshoot, with annual demand on resources exceeding what Earth can regenerate each year. It now takes the Earth one year and six months to regenerate what we use in a year. We maintain this overshoot by liquidating the Earth's resources."

Living Planet Reports have been undertaken in partnership with the Global Footprint Network, an international organization that reveals that not only would 1.5 planet Earths be required to sustainably support current human numbers, but we will need TWO planet Earths within less than 20 years. In fact, the United Nations estimates that if current population and consumption trends continue, we will need the equivalent of two planet Earths to support the world population in something like 12 years. Furthermore, if everyone on the planet consumed the same amount of resources as the average American does today, FIVE planet Earths would be needed. And to live like the top 1% in the U.S., with their excessively heavy ecological footprints, we'd need dozens. Obviously, there is only one Earth!

Lester Brown of the Earth Policy Institute observed this calculus of needing more than one Earth to sustain our present levels of consumption, and confirmed this fact that, "Environmentally, the world is in an overshoot mode", due to overconsumption and overpopulation.

Perhaps almost as ominous is the discovery that insect populations are in severe decline, a fact that may have catastrophic consequences for the survival of humankind and for Earth's ecosystems. Many kinds of insects are vital to natural ecosystems for the productive role they play in pollinating crops and controlling populations of other organisms, and in being a food source for many species of life higher up the food chain.

Insects are dying at a much faster rate than other animals. Scientists believe this ongoing loss of biodiversity is being driven by the heavy use of pesticides and environmental degradation caused by pollution, habitat destruction and climate change.

This sobering message has emerged from a comprehensive review of 73 historical reports on insect population declines, which found the rate of extinction is eight times faster than vertebrates such as mammals, birds and reptiles. More than a third of the world's insects are threatened with extinction in the next few decades. "Our work reveals dramatic rates of decline that may lead to the extinction of 40 per cent of the world's insect species over the next few decades," researchers wrote. They found evidence for decline in all insect groups reviewed, but said it was most pronounced for butterflies, moths, native bees, beetles and aquatic insects like dragonflies. Due to the high current level of species loss, Earth is entering into a sixth mass extinction event in 500 million years of geologic history, and conservationists are warning that much more needs to be done to protect the environment.

Humankind has used more resources in the last 100 years than in all of previous human history. During this time, while human numbers have increased 400%, usages of crucial fresh water resources have increased 700%. We are also causing extensive damage to rainforests, boreal forests, wetlands, coral reefs and other important wildlife habitats and entire ecosystems. Not only are our activities altering the gaseous composition of the atmosphere, but they are even changing the alkaline/acidic balance of the oceans and contributing to insidiously rising sea levels. These are among the reasons why there is a serious diminishing of the carrying capacity of the Earth to support us. This overshoot is making it more and more difficult to meet the needs of a growing global human population, and to

leave living space and unpolluted fresh water for other species of life.

In another daunting development, a World Water Development Report was released in March 2015 that revealed there will be a shortfall of about 40% in fresh water supplies worldwide by the year 2030. The report by a number of agencies of the United Nations, titled *Water for a Sustainable World*, indicated that the number of people without access to adequate supplies of fresh water is projected to increase from 750 million people to over 3 billion people -- within ten years now. Woe! The report also indicated that there will be an increase of more than 50% in global water demand by 2050, and groundwater depletion is increasing the risks of widespread drinking water shortages and catastrophic crop failures, as well as the intensification of conflicts over access to fresh water and its usages.

The report recommends effective new water conservation measures and more efficient uses, along with water recycling and more extensive treatment and use of wastewater. The state of California underwent five drought years in a row before the 2016-2017 precipitation year, and snowpacks in the Sierra Nevada in 2015 were at the lowest levels ever recorded, making this a critical issue in the state. In Brazil, the worst drought in the country's history has bedeviled São Paulo and other Brazilian cities, causing an unprecedented water crisis that is being made worse by polluted rivers, deforestation, warming regional temperatures and rapid population growth. Decision-makers at all levels of government need to come together collaboratively to address problems like this, and they should not obstruct solutions by stubbornly denying the risks or opposing good solutions.

In light of the unfolding global water crisis, it is a titanic folly for the Trump administration's EPA to have released a "Dirty Water Rule", a disastrous plan to gut protections of the Clean Water Act that help prevent the pollution of drinking water sources for millions of Americans. "It makes no scientific, legal, public health, or fiscal sense", according to environmental groups who regard this move as an irresponsible effort to give giant fossil fuel corporate entities and factory farms and other industrial polluters the green light to pollute thousands of vital rivers, lakes, and streams in the United States without any repercussions.

In the summer of 2019 in the Southern Hemisphere (January and February), farmers faced a desperate plight in Australia, with exceedingly hot temperatures and desperate drought conditions in many areas. Then in 2020, the biggest wildfires in recorded history scorched the continent. These developments illustrate a larger reality that, as planetary temperatures continue to increase and rainfall patterns shift due to human-caused climate disruption, our ability to grow crops and have enough drinking water will become increasingly challenged, and the outlook is only going to worsen. The most recent United Nations IPCC report warned of increasingly intense droughts and mass water shortages around large swaths of the globe.

Even conservative organizations have been sounding the alarm. "Water insecurity could multiply the risk of conflict," warned one of the World Bank's reports on the issue. "Food price spikes caused by droughts can inflame latent conflicts and drive migration. Where economic growth is impacted by rainfall, episodes of droughts and floods have generated waves of migration and spikes in violence within countries." Meanwhile, a study published in the journal *Global Environmental Change* looked at how "hydro-political issues" -- including tensions and potential violent conflicts -- could play out in countries like India and Pakistan that are expected to experience water shortages and have huge populations and pre-existing geopolitical tensions.

The study warned that these factors could combine to increase the likelihood of water-related strife -- "potentially escalating into armed conflict in cross-boundary river basins in places around the world by 75 to 95 percent. This means that in some places conflict is practically guaranteed." These areas include regions situated around primary rivers in Asia and North Africa, and notably the Tigris and Euphrates rivers, the Indus, the Nile and the Ganges-Brahmaputra.

"Consider the fact that eleven countries share the Nile River basin: Egypt, Burundi, Kenya, Eritrea, Ethiopia, Uganda, Rwanda, Sudan, South Sudan, Tanzania and the Democratic Republic of Congo. All told, more than 300 million people already live in these countries -- a number that is projected to double in the coming decades, while the amount of available water will continue to shrink due to climate change."

"For those in the U.S. thinking these potential conflicts will only occur in distant lands -- think again. The study also warned of a very high chance of "hydro-political interactions" in portions of the southwestern U.S. and northern Mexico, around the Colorado River."

"As if to underscore all of this, even the U.S. military recently warned that climate change is a worldwide threat. The military's Worldwide Threat Assessment report warned that climate change and other types of environmental degradation threaten global stability because they are "likely to fuel competition for resources, economic distress, and social discontent ..."

A Better Understanding of Population Overshoot

Human population overshoot can be more clearly understood in light of a story about reindeer introduced on St. Matthew Island in the Bering Sea in 1944. Just 29 reindeer were put onto the island to provide an emergency "roaming food source" for military personnel stationed in this remote area of Alaska during World War II. At the time, experts estimated that the island's rich food resources could probably support a population of maybe 2,000 reindeer. Soon after the war ended in 1945, the Coast Guard left the island, so it was "a fine situation for the animals at first -- their only predators had disappeared, leaving them on a 32-mile long and four-mile wide island rich with their favorite food, lichens." Since the carrying capacity of the island could sustainably accommodate an estimated 2,000 reindeer, the population kept inexorably increasing. Eventually it surpassed 2,000, and then 3,000, and 4,000. By 1963 the population of reindeer had increased to some 6,000 animals, and skeptics jeered at predictions by scientists that the carrying capacity of St. Matthew Island was only 2,000 reindeer. But population overshoot led to a severe depletion of the lichen food supply, and this, combined with a harsh winter in 1964, caused the population to crash to only 42 animals. And by the 1980s, the reindeer population had completely died out, leaving them extinct on the island.

The carrying capacity of island Earth for our human kind involves a much more complex calculus, but there is no doubt that the increase in human numbers from 1 billion in the year 1800 to 2 billion in 1930, to 3 billion in 1960, to a projected 8 billion by 2024, has been facilitated by the use of fossil fuels, and we are depleting these convenient sources of energy at an alarmingly wasteful and rashly harm-engendering rate.

There are other scary signs that we are in a situation of ecological overshoot. These include:

-- Sea level has risen between 4 to 8 inches since the year 1900, and almost all glaciers found in mountains around the planet are retreating. Also, the extent and thickness of Arctic sea ice is showing a long term decreasing trend. Dr. James Hansen and 16 other climate scientists warned in 2015 that sea levels could rise as much as 10 feet in the next 50 years if international goals for greenhouse gas reductions are not made significantly stronger. This would have calamitous economic consequences and social disruptions and forced relocations and destabilizing migrations of refugees and immigrants. These findings give even more powerful impetus to the idea that we should hedge our bets by investing much more money in mitigation strategies.

-- In 2002, the United Nations Food and Agriculture Organization estimated that 75 percent of the ocean fisheries in the world were being fished at, or in excess of, a sustainable rate. The North Atlantic cod fishery, as a glaring example, had been fished sustainably for 500 years, but then the Northern Cod fish stocks fell to 1% of earlier levels and a moratorium on fishing for cod was necessarily declared.

-- The first global assessment of soil loss, based on studies by hundreds of experts, found that almost 40% of currently used agricultural land has been degraded.

-- The phenomenon known as honeybee colony collapse disorder is getting worse. A survey of thousands of beekeepers in the U.S. found that they have lost more than 40% of their colonies in the past few years alone. Since roughly one-third of all plants that people consume rely on being pollinated by bees, this is an indicator that we need to make strong commitments to addressing the causes of colony collapse disorder to mitigate a potential food crisis implied by this trend. Chemical insecticides known as neonicotinoids are implicated, so stronger rules and limits on their use should be put into place.

-- Huge costs are being externalized onto the general public around the world in connection with animal husbandry. Tens of billions of farm animals are being raised for food, including chickens, cattle, pigs, sheep and

goats, and this contributes to widespread negative impacts that include heavy use of fresh water resources, extensive pollution from animal wastes, toxic run-off from pesticides and fertilizers, harmful human health outcomes, rapid rainforest destruction, and the production of large quantities of greenhouse gases like methane, carbon dioxide and nitrous oxide. Animal agriculture is responsible for almost two-thirds of all the human-caused emissions of nitrous oxide, a greenhouse gas that has almost 300 times the global warming potential of carbon dioxide, and that stays in the atmosphere much longer. Close analysis indicates that a move toward plant-based diets would be sustainable for a longer period of time, but trends of production and consumption of animals for food indicate that humanity is not moving in that direction.

These are symptoms of a world in overshoot. We are drawing on the world's resources faster than they can be restored, and we are generating wastes and pollutants faster than the Earth can absorb them, or render them harmless. These developments are leading us toward global environmental and economic collapse -- but there may still be time to deal with these problems and soften their impact, if we act intelligently, and do so SOON.

This is the ultimate moral imperative, given the global scope and severe consequences of failing to act. We must honor this perspective, especially in light of the harsh reality expressed long ago by Niccolo Machiavelli in *The Prince*: "It ought to be remembered that there is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new. This coolness arises partly from fear of the opponents, who have the laws on their side, and partly from the incredulity of men, who do not readily believe in new things until they have had a long experience of them."

Complicating this situation is the fact that levels of income and wealth inequalities are today the most extreme since the Gilded Age more than 100 years ago. This has the effect of eroding social cohesion and making cooperative efforts to cope with gathering global challenges overly difficult. More than 45% of people in the world currently live on incomes of less than \$6.00 a day, and the richest 10% of adults in the world own 85% of global assets -- and the gap between the rich and the poor has been widening. Reforms are needed in this arena!

An Introspection into Overshoot

We are faced with daunting paradoxes in the world today. The best way to limit population overshoot would be by strongly encouraging family planning programs and the use of contraceptives, and allowing all women who become pregnant and do not want to have a child to get a safe and legal abortion. Unfortunately, established religions worldwide, and the largest two in particular -- Christianity and Islam -- are still staunchly opposed to sensible family planning policies. This stubborn opposition is theoretically because being fruitful and multiplying are bedrock dogmas of their religious doctrines, but the real story is that religious establishments rely on high rates of reproduction to spawn easily indoctrinated new believers. Influence, authority, power, control and lots of money are involved, but this stance is becoming increasingly archaic from demographic standpoints and an ecological point of view, as the world population increases toward 8 billion. The need for proactive family planning policies is growing, and religions need to relent in their opposition to family planning and contraception.

The QUALITY OF LIFE should be what is most important in human affairs, not the amount of things we can consume or the quantity of possessions we can accumulate, or the number of offspring we can produce.

The scholar William Robert Catton wrote a book titled *Overshoot: The Ecological Basis of Revolutionary Change*, in which his core message is, "our lifestyles, mores, institutions, patterns of interaction, values and expectations are shaped by a cultural heritage that was formed in a time when carrying capacity exceeded the human load. A cultural heritage can outlast the conditions that produced it. That carrying capacity surplus is gone now, eroded both by population increase and immense technological enlargement of per capita resource appetites and environmental impacts. Human life is now being lived in an era of deepening *carrying capacity deficit*. All of the familiar aspects of human societal life are under compelling pressure to change in this new era when the load increasingly exceeds the carrying capacities of many local regions -- and of a finite planet. Social disorganization, friction, demoralization and conflict will escalate."

Overcrowded conditions radically diminish the quality of life. In 1950, there was only a single city in the world with a population exceeding 10 million people. Today, Wikipedia lists more than 36 such megacities that have a metropolitan population exceeding 10 million. Urban areas have serious problems, and they will get much worse as converging challenges related to crowding, water availability, energy and climate alter prevailing conditions.

Many scientists who study population dynamics and ecology believe that humanity is already in a condition of population overshoot. Population overshoot occurs when a population exceeds the long-term carrying capacity of its environment. The carrying capacity of any species of life is the maximum population size of the species that the environment can sustain indefinitely, given the amount of food, water, available habitat and other necessities available. The carrying capacity can also be regarded as the number of individuals an environment can sustainably support without significant negative impacts to the species and the ecosystems that support it.

The carrying capacity for human beings on Earth changes over time due to a variety of factors, including food availability, water supply, environmental conditions, technological developments, quantities of pollution and waste, and resource use in excess of levels that can be indefinitely sustained. In this state of ecological overshoot, we are depleting the very resources on which human life and biological diversity depend. One consequence of population overshoot can be a crash in numbers or a die-off caused by starvation or disease.

Technology can play a role in the dynamics of carrying capacity. This can sometimes be positive, and in other cases its influence can have distinctly negative effects. As an example of positive effects of technological and cultural change, agriculture and animal husbandry were developed during the Neolithic revolution, and this has been serving to increase the carrying capacity of the world for humans ever since. In a similar way, the use of fossil fuels has artificially increased the carrying capacity of the world by providing a cheap source of energy and food production. Nonetheless, this additional food supply does not guarantee the capacity of the Earth's climatic and biospheric life-support systems to withstand the damage and wastes arising from the combustion of fossil fuels, and ominous changes in global temperatures, precipitation patterns and extremes of weather events indicate that the blessings of fossil fuels are beginning to reveal a dire accompanying curse.

Other technological advances that have increased the carrying capacity of the world for humans include the use of greenhouses, fertilizers, composting, fish farming and land reclamation. On the other hand, there are many technologies that have enabled big corporate entities and individuals to inflict much more environmental damage than ever before in history, and to do so more quickly, efficiently, and on a broader scale.

The Role of Anthropogenic Carbon Dioxide Emissions Evaluated

One does not need to be a scientist to understand scientific evidence. Climate scientists have measured bubbles of atmospheric gases trapped in deep layers of polar ice to determine that the concentration of carbon dioxide in the atmosphere was around 280 parts per million at the beginning of the Industrial Revolution in the 1750s. A dedicated scientist named Charles David Keeling of the Scripps Institution of Oceanography at UC San Diego was the first person to begin making frequent measurements of the concentration of carbon dioxide in the atmosphere. Beginning in 1958, he measured carbon dioxide to be 315 parts per million at the remote Mauna Loa Observatory high atop the Big Island of Hawaii. This represents an increase of 35 ppm in 200 years. Then this greenhouse gas concentration increased another 35 ppm to 350 ppm in the following 30 years, by 1978. Then by 1998, in only 20 years, carbon dioxide increased another 35 ppm to 385 ppm.

Think about this trend. 200 years, 30 years, 20 years. Annual increases in the concentration of this planet-warming gas have been *ACCELERATING* every decade since 1958, and Keeling found that these increases roughly match the amount of emissions generated by the burning of fossil fuels. Google the "Keeling Curve" to see the fascinating detail of this annually fluctuating trend.

An ominous milestone of 400 ppm was first reached in May 2013, and 417 ppm was exceeded in 2020. Extrapolating these increases in atmospheric carbon dioxide, this greenhouse gas will exceed 450 ppm before the year 2040, unless more effective international steps are taken to limit emissions, conserve energy resources, use fossil fuels much more frugally and efficiently, and make more concerted efforts to switch to cleaner energy alternatives. This amount of heat-trapping carbon dioxide approaches a threshold that could cause a double-

glazing of the planet that would create millions of "climate refugees" from coastal areas flooded by rising sea levels that result from the melting of glaciers and ice sheets. Climate disruptions could, according to the Pentagon, cause a heightened potential for catastrophically abrupt future changes in Earth's climate system due to the unintended consequences of feedback loops.

Carbon dioxide is a greenhouse gas that traps heat energy from the sun, so when the amount of carbon dioxide in the atmosphere increases, it causes an overall global warming trend. This, in turn, has a direct effect of destabilizing the global climate by increasing the heat energy in the climate system. Greenhouse gases warm the atmosphere by means of physical principles similar to those that warm a garden greenhouse. These gases do not impede the visible and ultraviolet light in sunlight as it passes through Earth's atmosphere, but when sunlight strikes the land and sea, it is converted into infrared heat energy and some of it is reflected back to the atmosphere, where greenhouse gases absorb this heat and cause an overall atmospheric warming.

The United Nations Intergovernmental Panel on Climate Change confirms the overwhelming scientific consensus that impacts of climate change are accelerating, and that they are largely driven by human-generated greenhouse gas emissions. The IPCC thus corroborates the understanding that human beings should not burn all of the world's known reserves of fossil fuels, because to do so would risk disastrous outcomes related to a severe escalation in global warming and further damaging disruptions of Earth's weather and climate patterns.

These facts mean that we need to live within a global "carbon budget". This is the amount of carbon dioxide emissions we can emit while still having a likely chance of limiting global temperature rise to a level that is widely acknowledged as being a threshold past which climate change impacts will become catastrophic. Stunningly, if emissions continue unabated, the world is on track to exceed the tolerable budget for the next 100 years in less than 30 years. Less than 30 years!

Scientists tell us that we must leave something like 80% of the known supplies of fossil fuels in the ground to prevent calamitous global warming and extremely costly future weather-related disasters and sea level rise. The public should rightly refuse to have beautiful protected public lands like BLM lands and designated National Monuments opened up to private extraction of coal, oil and natural gas. Our representatives should start to genuinely represent the best interests of the people rather than the narrow short-term financial interests of big corporations. They should honorably stand up and do the right thing by rejecting greedily myopic efforts to exploit public resources.

Living within a reasonable carbon budget is an enormous challenge in light of humanity's stark failure so far to limit emissions of climate-warming greenhouse gases. When the latest IPCC report made it clear that most fossil fuel reserves should be left in the ground to prevent excessively costly outcomes, it became clear how foolish it is to stimulate further development of high-carbon tar sands from Canada that would be carried in a Keystone XL pipeline. This would contribute to speeding up the unfolding "tragedy of the commons". After all, as the IPCC's Fifth Assessment Synthesis Report stated in November 2014: "Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems." This is not good!

The speed at which we are entering uncharted waters cautions us to slow down, wise up, and make stronger commitments to ensuring more socially responsible decision making. We should always remember the important concept articulated by Professor Garrett Hardin in 1968 concerning the Tragedy of the Commons: "Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons." He compellingly added, "Education can counteract the natural tendency to do the wrong thing ...". Knowledge is crucial, and choosing the right courses of action is the best plan.

A Republican Climate Change Resolution

Mark Reynolds, Executive Director of Citizens' Climate Lobby, sensibly declares, "The risks of climate change are far too great to get bogged down in partisan politics." So it was heartening to see that 20 Republicans in the House of Representatives signed on to a Republican Climate Resolution in March 2017 that recognizes the impact of

climate change and calls for bold action to reduce future risk. "With this resolution, these Republicans are saying that business-as-usual is unacceptable when it comes to preserving a livable world for future generations."

This Resolution represents a potential breakthrough among Republicans, tantalizingly offering the hope that Congress could work toward enacting a bipartisan solution to climate disruption, despite Donald Trump's brazen backwards move to thwart clean energy and double down on the profligate burning of fossil fuels.

The resolution states, "If left unaddressed, the consequences of a changing climate have the potential to adversely impact all Americans." It concludes that the House should commit to "working constructively, using our tradition of American ingenuity, innovation and exceptionalism to create and support economically viable and broadly supported private and public solutions to study and address the causes and effects of measured changes to our global and regional climates, including mitigation efforts and efforts to balance human activities that have been found to have an impact." Action, not merely empty rhetoric, is needed!

With 20 Republicans on board with this farsighted understanding, now we the American people should turn our collective gaze on the other 170 or so Republicans in the House, who all seem to be making the cold calculation that their careers are better served by sacrificing everyone's future well-being through inaction, denial and self-serving stubbornness. These politicians are in effect tacitly saying, "Oh, what the hell, preserving a livable world isn't really as important as getting more campaign contributions, and winning, and ruthlessly exerting misguided self-serving control.

Let us turn eyes of dolorous derision on these traitors to humanity on account of their abjectly going along with Kochtopus policies that insanely incentivize the socializing of costs onto all others to achieve exceedingly narrow personal advantages. See Postscript Two for the text of this Resolution.

A bipartisan Climate Solutions Caucus has been formed by two Congressmen from south Florida in the House of Representatives, and Caucus leaders are cautiously optimistic that they've started the ball rolling on climate action in Congress. "This is the beginning, and I have no doubt that we will be successful," said a Republican congressman from the highly vulnerable areas of southern Florida. "The question is, how long will it take?" Yes, how long? The clock is ticking. There are currently 41 Democrats and 24 Republicans in the House who have joined this caucus. And in the Senate there are 4 Democrats and 4 Republicans. (Why haven't most of our representatives in Congress joined the Climate Solutions Caucus? Follow the money!)

Other Valuable Perspectives

A thought-provoking film titled *The 11th Hour* sensationally conveys crucial understandings of the global scope and far-reaching import of the ecological challenges we face, and of the pivotal moment in time in which we live. It also reinforces the realization that there is an overarching and increasingly urgent need for humanity to radically change our resource squandering habits and waste-producing ways.

The 11th Hour documents the grave problems facing Earth's life systems. Global warming, deforestation, mass species extinctions, and depletion of ocean habitats are all assessed. The film's premise is that the future of humanity is in jeopardy, and it proposes potential solutions to these problems by calling for restorative action and the reshaping and rethinking of global human activity through socially responsible conservation and intelligently targeted technological innovation. We cannot afford to continue living in ways that are obtusely disconnected from nature, and in disrespectful disharmony with the natural world.

People's activities and behaviors are hard to change, but incentives and disincentives clearly have a powerful aggregate influence on the choices people make. Putting a meaningful price on carbon emissions would provide strong motivations for everyone -- producers, consumers, shoppers, vehicle drivers, air travelers, investors, speculators and innovators -- to seek low-carbon alternatives. Instead of acting to create powerful incentives to reduce carbon emissions, however, market forces are rashly overproducing oil today, having caused prices to plummet from \$112 per barrel in June 2014 to the \$30-\$60 range since then.

The authors of *The Limits to Growth* asserted in 1972 that global society would most likely fail to adjust to resource limitations and depletion, and would instead reach overshoot and risk industrial decline and economic collapse. It would clearly be a better idea to champion smarter and more precautionary planning. Sustainable

development is possible, but only if fair-minded and far-reaching adaptive changes are made.

When the famous and revealingly controversial book *The Limits to Growth* was first published not long after the founding of the annual occasion of Earth Day, it created an international sensation. Many industrialists and politicians and economists raised their voices in outrage at the suggestion that population growth and material consumption should be constrained. The preponderance of economic ideologies prescribe ever-increasing growth, so any suggestion that growth faces inevitable limits represents a threat to the status quo and to profit-making above all other values. Over the years, *The Limits to Growth* has been attacked by many people who don't understand its assertions, or misrepresent them, or dismiss the book as Malthusian hyperbole. But nothing that has happened in the last 48 years has invalidated the book's warnings.

On the contrary, as energy economist Matthew Simmons wrote in 2004, "The most amazing aspect of the book is how accurate many of the basic trend extrapolations still are." For example, the gap between rich and poor has only grown wider. In 1972, it seemed unimaginable that humanity could expand its numbers and economic activities enough to rashly alter the Earth's climate and other natural systems, but experience with the stratospheric ozone layer and the global climate system has proved otherwise.

All the environmental and economic problems discussed in *Limits to Growth* have been extensively explored, and there are hundreds of books on deforestation, global climate change, dwindling oil supplies and the extinction of species of life. Since *The Limits to Growth* was first published, these problems have been the focus of many conferences and much scientific research and media scrutiny. When *Limits to Growth: The 30-Year Update* was published, it evaluated the underlying economic structure that leads to these problems. These books are a valuable compilation of data for reference, so that readers can gain a comprehensive and coherent view of the challenges that loom before us.

Save the Seas

Roughly two-thirds of annual increases in the concentration of carbon dioxide in Earth's atmosphere can be attributed to the profligate burning of fossil fuels. The other one-third is a result of chopping down vast tracts of forests worldwide, an activity that not only diminishes the total capacity of trees to absorb carbon dioxide from the skies, but also releases some of the carbon in wood back into the atmosphere. A disturbingly large proportion of all greenhouse gas emissions are related to animal agriculture and a heavy emphasis on animal-based diets, as compellingly revealed in the sensational story told by Kip Anderson in his documentary film *Cowspiracy*. Watch this film for illumination! In addition to a litany of environmental problems associated with eating so many cows, pigs, sheep, goats, chickens, turkeys, ducks and fish and shellfish, the heavy emphasis on eating animals for food often involves profound ethical issues like the horrendously cruel confinement treatment of livestock and poultry, and the unsustainable nature of increasing demand for animals as food.

As the concentration of carbon dioxide in the atmosphere increases, oceans have been absorbing about a third of the increased amount of carbon. This physical process is altering the chemistry of the seas, causing "ocean acidification". Technically, what is really happening is that the slightly alkaline oceans are becoming less alkaline due to chemical reactions of carbon dioxide with ocean water, but this terminology should not distract our attention from the sobering fact that this is causing threats to future well-being through such outcomes as direct damages to coral reef communities everywhere these extraordinarily vital biodiversity hot spots occur.

The pH scale runs from zero to 14, with zero to 7 being acidic and 7 to 14 being alkaline. Ocean water is naturally slightly alkaline, but an increasing concentration of carbon dioxide in the atmosphere causes more of this gas to be absorbed into ocean waters, forming carbonic acid and decreasing the water's overall alkalinity. This harms life forms like corals and bivalves that depend on alkalinity to form calcium carbonate shells. Such damage should serve as a clarion call that urges people in all nations to take steps NOW to mitigate the risks and damages associated with business-as-usual activities that burn fossil fuels and chop down forests. Bold action is needed now, and not merely baby steps, and not just maybe at some ambiguous time in the future!

Dr. Sylvia Earle, one of the world's foremost marine scientists and ocean explorers, has expressed the strong conviction that human beings should work together to protect the world's oceans -- and help us save ourselves.

Curiously, as the oceans absorb a significant portion of the carbon dioxide we are spewing into the atmosphere, the seas are actually saving us from a more rapid onset of harmful consequences associated with greenhouse gas warming. Unfortunately, as seas absorb carbon emissions and the amount of carbonic acid in ocean waters increases, this acidity bleaches coral reefs and destroys the living communities they support, adversely affecting many marine organisms and impairing the ability of the oceans to provide for our growing demands.

Sylvia Earle is featured in an excellent Netflix documentary film titled *Mission Blue* that explores this issue and recommends that we begin to significantly increase the extent of protected areas in the oceans, and that we do so with more farsighted intention and action. I again recommend the even more exceptional film *Home* that was produced by the famous French aerial photographer Yann Arthus Bertrand, for its beautiful aerial photographic images from 54 countries and its evocative narration by actress Glenn Close. *Home* cogently provides a powerful ecological message and provocatively reveals many instances of damages we are causing, and the considerable interrelated impacts we are having on the planet.

It is particularly foolish to continue emitting climate-disrupting greenhouse gases into the skies without bold cooperative international efforts to make deep and decisive cuts in the amount of emissions we are generating. The British government's Stern Review (named after former World Bank chief economist Nicholas Stern) provided a turning point in understandings in 2006. It was asserted in the report that there will be substantial economic costs for doing nothing about the things that contribute to climate change. The report's conclusion stated that the benefits of strong, early action on climate change outweigh the costs by a considerable margin.

A "tragedy of the commons" difficulty has bedeviled international efforts to reduce carbon emissions. This is because the costs to reduce emissions are local, while the benefits are diffuse and seem distant over space and time. Most people basically want to "get a free ride" rather than to be responsible for any of the costs of mitigation initiatives. Worse, current generations are motivated to ride free by pushing costs of dealing with climate change onto folks in the future. Coordinated global action is required, and the most positive steps in decades were finally taken in Paris at the Climate Change Conference in December 2015.

After 195 nations signed the Paris Agreement, it was heralded by some observers as a monumental achievement and the beginning of a process that would roll back the poisonous fruit of humankind's shortsightedness. Others viewed the Accords as too little, too late.

In April 2016, officials converged on the United Nations to take follow-up steps in codifying the Paris Accords. Ominous reports in the four months following the Paris agreement buttressed skepticism of the probable success of this agreement due to its insufficiency in dealing with deteriorating conditions. Global warming, it appears, is trending toward hitting "geological hyperspeed" in coming decades. The last 5 years have been the warmest in recorded history, and Greenland's ice sheet is experiencing springtime melt several weeks earlier than usual, and "much of West Antarctica is at risk of slipping into the Southern Ocean by 2100, adding three feet to global sea levels. Coastal cities that are home to millions of people may be underwater during the lifetimes of those born today."

The Paris pact "might not be enough, especially in terms of sea-level rise," stated Rob DeConto, a geoscientist at the University of Massachusetts-Amherst. DeConto co-wrote the study that warned of Antarctica's fate. "We really need to go to zero emissions as soon as possible."

Trump adduced some irrational and in many ways stupid rationalizations for his divisive and hostile action on the international stage. This move will serve to cede future job growth in clean energy technologies to China and other countries driven by the limitations in the pact to invest more heavily in clean energy innovation and renewable energy alternatives instead of dirty fossil fuels. Wind and solar power already employ many more times the jobs than the highly automated coal mining industry does, so for Trump to claim he is bringing coal jobs back, with their excessively heavy carbon footprint, he is espousing a boneheaded and shortsighted goal. It would be a vastly better national energy policy to put in place Pigovian carbon taxes that should be implemented in a highly egalitarian way that would give dividends to every American from the revenues raised by this incentive-based initiative.

Trump rationalized his decision to withdraw from the Paris climate action pact by directing withering criticism at it, and he cast the Paris Accords as a humiliating defeat for American workers that unfairly advantaged foreign countries. At his announcement event in the Rose Garden, he queried, "At what point does America get demeaned? At what point do they start laughing at us as a country?"

"We want fair treatment," the Dissembler-in-Chief declared. "We don't want other countries and other leaders to laugh at us anymore." Ha ha ha. Almost any fair-minded observer would see that many people in countries around the world have already been laughing at Trump, ruefully and with grave trepidation. They are laughing at the absurdity of many things Trump says and tweets and does. Accompanying the derisive laughter is a lot of angst at the unnecessary danger to which Trump is exposing the American people -- and humankind -- now and in the future, merely so that his cronies can profit from the ruses. See Book Twelve of the Earth Manifesto, *SEE CLEARLY - Sanity During Insane Times*, for greater clarity into the schemes, malfeasance and follies that are contributing to this widespread consternation.

Trump's actions are deeply corrupted by money, avarice and self-serving priorities, and his abuses of executive power are stoking people's fears as well as provoking their cynical laughter. In defending the indefensible, the "Moron"-in-Chief is proving to be uncooperative with other nations on the world stage, and antagonistic to many.

The anti-Paris move was a last straw in ecology. "What fresh hell is this?", Dorothy Parker might have queried. The stupidity of the action is simply stunning. It is a brazenly irresponsible rejection of far-sighted good management and smart planning. It is an action that divides us from the community of nations and sacrifices the well-being of people in future generations in order to rashly ramp up the scam of externalizing costs onto society, and onto people everywhere in future years.

Big Picture Perspectives

A headline in a national newspaper in 2005 read, *Humans' Basic Needs Destroying Planet Rapidly*. This article concerned the Millennium Ecosystem Assessment, a study in which more than 1,350 experts in 95 countries had spent four years compiling their findings. The Assessment concluded that the human race is consuming natural resources unsustainably, and that we are simultaneously degrading the ecosystems upon which we depend. It warned that we need to develop new methods of economic activity so that in the course of living our lives we will at the same time better protect the vitality of our environment and the future prospects of life on Earth.

Clearly our national values and priorities need to be reassessed. The way we measure economic growth itself should be changed. Instead of a value-blind Gross Domestic Product measure, we should adopt a means of assessing economic activity that takes the true quality of life into account. The nation of Bhutan has been remarkably forward thinking in adopting what it calls a Gross National Happiness Index. Bhutan's commendable "four pillars of Gross National Happiness" are: (1) Sustainable and equitable socioeconomic development; (2) Environmental conservation; (3) The preservation and promotion of culture; and (4) Good governance.

The Gross National Happiness Index is a great idea. Instead of prioritizing low tax rates on the highest levels of incomes, and rather than undermining environmental protections and borrowing huge sums of money to stimulate short-term profit-making, we should emphasize sustainable development, resource conservation, fiscal responsibility, good governance, fairness, bold protections of vital ecosystems and ecological sanity!

The philosophic writer John Fowles once made a compelling observation about one of the behavioral forces driving our materialistic and growth-addicted economic system: "Much more than we let philosophies guide our lives, we allow obsessions to drive them; and there is no doubt which has been the great driving obsession of the last one hundred and fifty years. It is money." ... "Having, not being, governs our time." Be Here Now!

"It's too late to be a pessimist," Glenn Close declares in Yann Arthus-Bertrand's sensational film *Home*. The time for remedial action is now. "When action is needed, optimism, even of the mildly delusional variety, may be a good thing," writes Daniel Kahneman in *Thinking, Fast and Slow*. An optimistic temperament encourages persistence in the face of obstacles. The obstacles today are global, and the stakes have never been higher, and we are in a classic Bet Situation.

The Bet Situation is concerned with philosophical debates that have profound practical implications regarding probabilities and the future. We are all confronted with Bet Situations in our lives because (1) there are uncertainties, (2) we are inextricably involved in the game, and (3) it is important to us in our own lives, and in the lives of our fellow human beings, that we make decisions that are more conscious, conscientious, and socially responsible with regard to a variety of important categories of bets we are collectively making. One odd bet we are making is that the cost of spewing billions of tons of carbon dioxide into the atmosphere every year will not be prohibitively high due to the myriad impacts of global warming, climate change, and severe disruptions of natural ecosystems. We would be better advised to bet that a wiser and safer course of action would be to invest in cleaner renewable alternatives to fossil fuels, and to aggressively adopt more efficient and conservation-oriented energy policies that are well designed to prevent irreversible ecological damages. In this smarter bet, we would institute green fees that would reduce the amount of costs being eternalized, and eliminate perverse incentives and big subsidies currently being given to power-abusing fossil fuel industries.

Experts in risk assessment and fiduciary responsibility indicate that it is prudent to hedge a big bet to protect against uncertainties, especially during times of instability and volatility, and when there are multiple exposures or systemic risks in addition to ordinary risks. If there is only a 20% chance that sea levels will rise by 3 feet by 2050, but such an event would cost \$10 trillion in flood damages, crop losses, property disappearance, salt water intrusion, relocation expenses and lost GDP, then the prudent thing to do would be to hedge against this risk by investing \$1 trillion in the next 10 years to mitigate the threat and put into place adaptive countermeasures. The IPCC's last completed assessment in 2014 indicated that sea levels would likely rise by one meter (3 feet) by 2100, so this probability makes it clear that hedging our bets is a true precautionary idea.

When the respected scientist James Hansen and 16 other experts released a highly controversial study in 2015 declaring that potential feedback loops could cause sea level to rise much faster than the IPCC studies have projected -- a rise of 3 meters, or almost 10 feet, within 50 years! -- this gave even more powerful impetus to the idea that we should hedge our bets by investing in mitigation strategies!

Hear the perspective in the Introduction to this study, which characterizes the most likely increase in global warming this century of 2 degrees Centigrade (3.6 degrees Fahrenheit) as "highly dangerous":

"Humanity is rapidly extracting and burning fossil fuels without full understanding of the consequences. Current assessments place emphasis on practical effects such as increasing extremes of heat waves, droughts, heavy rainfall, floods and encroaching seas. These assessments and our recent study conclude that there is an urgency to slow carbon dioxide emissions, because the longevity of the carbon in the climate system and persistence of the induced warming may lock in unavoidable highly undesirable consequences.

Despite these warnings, global CO₂ emissions continue to increase, as fossil fuels remain the primary energy source. The argument is made that it is economically and morally responsible to continue fossil fuel use for the sake of raising living standards, with an expectation that humanity can adapt to climate change and find ways to minimize effects via advanced technologies.

We suggest that this viewpoint fails to appreciate the nature of the threat posed by ice sheet instability and sea level rise. If the ocean continues to accumulate heat and increase melting of marine-terminating ice shelves of Antarctica and Greenland, a point will be reached at which it is impossible to avoid large scale ice sheet disintegration with sea level rise of at least several meters. The economic and social cost of losing functionality of all coastal cities is practically incalculable. We suggest that a strategic approach relying on adaptation to such consequences is unacceptable to most of humanity, so it is important to understand this threat as soon as possible."

The Goddess of Irony seems to have sent a series of epic storms into a stronghold of climate change deniers in Texas in the past five years, first with three deluges that each dumped more than 12 inches of rain in the Houston area, causing widespread flooding, and then capping it off with Hurricane Harvey that dumped 50 inches of rain in a few days, the heaviest deluge ever recorded in the USA. Ignorance and denial can obviously prove to be exceedingly costly.

Ecology and Politics

Here was an important idea expressed in the Living Planet Report 2014: "Natural capital is a key concept of the *Living Planet Report*. While it may be an economic metaphor, it encapsulates the idea that our economic prosperity and our well-being are reliant upon the resources provided by a healthy planet. In a world where so many people live in poverty, it may appear as though protecting nature is a luxury. But it is quite the opposite. For many of the world's poorest people, it is a lifeline. And we are all in this together. We all need food, fresh water and clean air - - wherever in the world we live."

"We need a few things to change. First, we need unity around a common cause. Public, private and civil society sectors need to pull together in a bold and coordinated effort. Second, we need leadership for change. Sitting on the bench waiting for someone else to make the first move doesn't work. Heads of state need to start thinking globally; businesses and consumers need to stop behaving as if we live in a limitless world."

Sanity Check Interlude

I, Tiffany B. Twain, have always had the markedly good fortune to have a sunny disposition, and at the same time to have generally manifested a thoughtful and caring composure. Famed (and notorious) cornucopians like Julian Simon and Bjorn Lomborg, the *Skeptical Environmentalist*, urge people to not worry so much about signs that all is not well in the world. A cornucopian is a futurist who believes that continued progress and provision of material items for mankind can be met by new advances in technology. Cornucopians fundamentally believe that there are enough resources and energy on Earth to provide for the ever-rising population of the world. Here is the theory of it: "As a society becomes more wealthy, it also creates a well-developed set of legal rules to produce the conditions of freedom and security that progress requires." Presto! "Let the good times roll."

It is easy to be skeptical about how well legal rules work, and for whom. Big corporations and the richest 1% benefit excessively from the fine print details in international trade agreements, and huge amounts of wealth are hidden in offshore tax havens and a "shadow banking system", so cornucopians turn out to often be apologists for some real pathetic "progress."

"Stereotypically, a cornucopian is someone who posits that there are few intractable natural limits to growth, and believes the world can provide a practically limitless abundance of natural resources. The 'cornucopian' label is rarely self-applied, and is most commonly used derogatorily by those who believe that the target is overly optimistic about the resources that will be available in the future. A common example of this labeling is by those who are skeptical of the view that technology can solve the problem of an exponentially-increasing human population living off a finite base of natural resources. So-called cornucopians might counter that human population growth has slowed dramatically, and not only is currently growing at a linear rate, but is projected to peak and start declining later this century."

Julian Simon is an optimist who works hard to rationalize population growth and the unrestrained exploitation of natural resources. But what he seems to fail to see or admit is that by disrespecting the needs of other forms of life on Earth, we are driving them toward extinction, in effect hacking away at the trunk of the tree of life upon which our human flourishing and survival ultimately depends.

I heartily agree that we should not worry too much, and yet a vigilant, responsible concern for the future is our ultimate moral imperative. We need to avoid both irrational exuberance and excessive pessimism. And nations worldwide should take meaningful steps to reduce the amount of costs being foisted onto people in the future.

The term cornucopian comes from Cornucopia, a "horn of plenty" in Greek mythology that magically supplied its owners with endless food and drink. Cornucopians are sometimes known as "boomsters", and their philosophic opponents -- like Thomas Robert Malthus and those who believe in the eventual soundness of Malthusian ideas -- are called "doomsters".

An honestly balanced perspective reveals that humanity has done surprisingly well in the face of circumstances that seem to spell justified gloom. Let's look at a big picture assessment of where we collectively stand today. In the year 2000, the United Nations formulated eight Millennium Development Goals to serve as farsighted international objectives. Since then, surprising progress has been made on achieving these overarching global

goals. The rate of extreme poverty has been somewhat reduced, and the spread of HIV/AIDS has been slowed, and progress has been made toward providing universal primary education.

So the perilous straits in which we find ourselves are not yet completely desperate. Before the 2020 pandemic began, I observed, "we are living at a time of Peak Cornucopia, and the average life span for people in most countries continues a long-term increase, implying that sanitation and health conditions are continuing to improve. Inflation in the cost of necessities like food is reasonably contained." And there were fewer hungry people in the world in 2015 than there were 25 years earlier, according to *The State of Food Insecurity in the World 2015*, a report done by the United Nations. The number of hungry people globally declined about 20% from one billion in 1990 to under 800 million in 2015, despite an on-going surge in population growth. This report attributed the hunger reduction in part to stable political conditions and economic growth in many countries that had met the Millennium Development Goals. Of course, there were still 800 million people who are persistently hungry and are experiencing food insecurity, and some regions have failed to achieve hunger reduction goals. There are 24 African countries, for instance, that face serious food crises today, twice as many as in 1990. Extreme weather events, natural disasters, political instability and civil strife are contributory factors to failures on this front.

Ominously, one Millennium Development Goal not being attained is *Goal 7: Ensure Environmental Sustainability*. This shortcoming is a leading indicator for worsen trends in the future as fresh water resources and fossil fuels and other minerals are depleted. Nearly one-third of marine fish stocks have been overexploited, and the world's fisheries can no longer produce maximum sustainable yields, and more species are at risk of extinction despite an increase in protected areas. Forests, particularly in South America and Africa, are disappearing at an alarming rate, and global carbon dioxide emissions have increased by something like 50% since 1990.

It is perfectly clear that progress is possible and good solutions exist that can be surprisingly effective. It would be an eminently good precautionary idea to take bold proactive steps to diminish the possibility that billions of people will become more desperate in the future. Planning ahead well enough to make sure people in the future do not become overly desperate is a real good idea, because desperate people are not likely to care about limits or to conserve critical resources, or to respect the rights and personal safety of others, or to act in ways consistent with the best interests of people in the future.

Objective Evaluation

It must be admitted that objectivity in assessment is crucially important. Many people live in bubbles of skewed perception in liberal areas of the country, and there are other very different bubbles like those in Libertarian New Hampshire or the conservative Bible Belt of the South that offer conflicting perspectives. All bubbles, however, do not have equal prospects of validity. For instance, a Bible Belt bubble that believes in a literal reading of the Bible denies the indisputable evidence of biological evolution over billions of years of time, and really delusional faithful people apparently believe in Creationist genealogies that assume a LORD God made the world in relatively recent times. This does not mean that there is a 50/50 chance that the Bible believers are right and that biological evolution did not occur. We have a critical need to seek the best understandings so that we can facilitate hopes for contributing to constructive change.

Seamus McGraw provides balanced and fascinating perspectives in his book *Betting the Farm on a Drought*. One stunning idea is this: "Long existing cultural fractures are being exploited by the most extreme voices on the right and the left, and the cultural fissures they force open have spider-webbed throughout society, rendering us more divided, perhaps, than we've been at any time since the Civil War."

Why are the American people so divided that it is perhaps the worst since the Civil War? Consider this closely. Bitter divisions during the Civil War came about due to a fight over a slave-based agricultural economic system in Southern states that was founded on owning slaves as property to provide cheap labor on plantations. An estimated 600,000 people were killed in that terrible war. Today, however, the reason for the divisiveness is petty by comparison. It is due to a ruling class commandeering for themselves the preponderance of profits generated by economic activities and increasing productivity, and its exploitation of workers and depletion of natural resources. It is also due to their jealous and stalwart defense of the laws and conditions that enable them to get and keep this substantial monopoly.

Intense discord today is ramped up by the growing injustice of increasing inequities. This pathological condition is egregiously exacerbated by divisive propaganda that takes advantage of people's insecurities, prejudices, fears, fundamentalist religious convictions, and gullibility in believing manipulative spin. Naturally, there is a stupendous supply of manipulative spin being propagated by argumentative talking heads on Fox News, Inc., and on conservative talk radio. Operatives in conservative think tanks are also wielding outsized influence, and emotionally exploitive political advertising pervades social media, perversely influencing Public Opinion.

A primary focus of this barrage of pervasive, insidiously persuasive and narrowly biased ideological deceptions is to convince voters that rich people are entitled to their growing riches, and that it is practically their God-given right to exploit working people, abuse the undue influence of their money and power, and have the government-sanctioned freedom to privatize profits by socializing many costs through the expediency of externalizing them onto everyone in current and future generations.

The main tools the ruling class uses today to rig our economic and political systems, and to perpetuate their increasing monopoly on the nation's wealth, are regressive tax schemes, public deficit spending, deeply obligated politicians, machine politics, antagonism to compromise, a lack of democratically fair limits on campaign financing and lobbying activities, skewed provisions of international trade agreements, crippled regulatory agencies, and allowances for corporate entities to achieve their primary purposes of maximizing private profits and limiting liabilities of owners and shareholders by all-too-often scurrilous means.

No deadly Civil War is needed to correct this modern day form of enslaving the masses, but we do need a far-reaching and responsible Bill of Rights for Future Generations. We should also implement revolutionary reforms of tax laws, campaign finance laws, public education financing, student debt rules, environmental protections, corporate personhood privileges and programs that help create equality of opportunities, along with a whole passel of other sensible common good actions, as summarized in *Common Sense Revival* in this manifesto.

Curiously, our economic system today still exploits black people by compensating them much less than white men. The average pay for black males is only 75% as much as the average for white males. And the average for black women is only 64%. For Hispanic males, pay is only 67% of that received by white males, and for Hispanic women it is a pathetic 54%. Women, on average, still make less than 80% as much as the average male for the same work. These are gross inequities.

In any case, it appears that another of the main things missing in dealing intelligently with risks like climate change is fair-minded political leadership. Tea Party conservatives have become mentally obtuse by consuming big helpings of half-baked Corn Pone Opinions, so I believe that the time has come today for a more enlightened regime than the Koch cooks' social and economic recipes, or Rush Limbaugh's or Ann Coulter's retrogressive prescriptions. Trump Republicans are downright scary in their half-baked proposals and unethical activities, so the American people should soundly reject them in all future election contests.

Being a fit and farsighted gal, and representing vastly healthier and more open-minded ways of seeing and being, yours truly Tiffany Twain offers readers an outstanding recipe for a seven vegetable Baked Corn Pone Polenta with Shiitake Mushrooms. Google "Tiffany Twain Corn Pone Polenta" to find this sophisticated recipe, which follows a cogent summary of Mark Twain's insightful perspectives on down home secondhand corn pone opinions. This recipe is contained in my surprisingly discursive biography of that drawling rascal, Mark Twain.

Unethical Political Resistance and Recommended Right Action

Oklahoma Senator James Inhofe was the Republican chairman of the Senate Committee on Environment and Public Works from January 2015 to the end of 2017. Unbelievable! In this capacity, he was responsible for dealing with matters related to the environment, despite being one of the most notorious opponents of taking fair-minded actions to mitigate the risks of the aggressive exploitation of fossil fuel resources. Inhofe wrote a book charging that climate change is a hoax. Climate change caused by humanity is impossible, he deviously declared, because "God's still up there." He cited a passage in the Bible (*Genesis 8:22*) to claim that it is "outrageous" and arrogant for people to believe that human beings are "able to change what He is doing in the climate ...". Anyone familiar with the real facts is aware that there is not a 50/50 chance that he is correct in declaring that human activities

could not possibly alter climatic conditions. Scientists are almost unanimous in confirming that human activities actually are the main factors wreaking havoc on global climatic conditions and harmfully contributing to extreme weather events.

James Inhofe is not stupid. He is shrewd, and his shrewdness involves blatant conflicts of interest. He is also dishonest and coldly calculating and outrageously self-serving. Even the Catholic Church strongly disagrees with Inhofe. In December 2014, Pope Francis stated: "The effective struggle against global warming will only be possible with a responsible collective answer that goes beyond particular interests and behavior, and is developed free of political and economic pressures. On climate change, there is a clear, definitive and ineluctable ethical imperative to act. The establishment of an international climate change treaty is a grave ethical and moral responsibility."

The documentary film *Merchants of Doubt* reveals the insidiously treacherous strategies that were used by giant tobacco companies for decades to deny the harms to human health caused by tobacco use. The primary purpose of this tactic was to delay remedial measures so that tobacco profits could be maximized. The film investigates similar devious tactics being used today by some of the same very highly compensated legal beagles and climate deniers to cast doubt on climate change impacts. Paid for by huge corporations obsessed with maximizing short-term profits, the goal of this obfuscation is to delay effective action in dealing with this crucial issue. But with climate change, humanity cannot afford to wait decades to act.

Encouraging the public to doubt the effects that our fossil fuel burning habits have on global warming and climate change can be impressively lucrative work for science deniers, and for those who serve as merchants of doubt. But as Dr. Naomi Oreskes and Dr. Erik Conway wrote in a work of science fiction that followed their book *Merchants of Doubt*, "... conservatives, by fighting sensible action to cope with the climate crisis, are essentially guaranteeing the long-term outcome they fear, which is a huge expansion of government."

Come to your senses, conservatives! Let's seek common cause, and collaborate together for a better future! It is ironic and colossally foolish for ideological opposition to climate action to harden, even as legitimate concerns have become increasingly serious.

Evidence should rule, not blind faith in ideology. Overall global temperatures have increased in recent decades, with the warmest years ever recorded all coming since 2010. This average warming trend is strongly correlated to the greenhouse effect associated with increasing concentrations of greenhouse gases in the atmosphere. As the protective blanket of air surrounding the Earth warms, it intensifies the potential strength of storms and destabilizes precipitation patterns around the planet. Increasing costs of natural disasters caused by severe weather in recent years corroborate the understanding that changes in the climate are already very costly, and are certain to become more and more costly in the future, jutting ever upwards like the Keeling Curve.

Uncertainty is an inherent element of honest science. But in the political sphere, uncertainty has been used in dishonest ways as an excuse for denial and inaction. When climate change deniers sow doubt and confusion in order to reap big profits, they are acting in dangerously irresponsible ways. The famous Principle 15 of the 1992 Rio Declaration on Environment and Development stipulated:

"In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. *Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.*"

When people deny the transcendent moral truth of this wise precautionary principle, they are in effect denying that the best plan for humanity would be to establish policies that would assure a more propitious fate for our descendants in future generations. We humans love to find affirmative meaning in our lives -- that's what *hope* is all about. I believe it would be better if the general populace sought common meaning, all together, in protecting the beautiful Creation in which we find ourselves, and the ecological foundations of our well-being.

The moral right choice is to understand and admit, not deny, the impacts that humans are having. The proper thing to do would be to enact smart incentives and green fees that will serve to prevent or mitigate irreversible environmental damages. The right thing to do would be to reduce "free riding" at the expense of people in future

generations. The improper thing to do is to disingenuously declare, "I am not a scientist," and to obstruct efforts to mitigate the destabilization of the climate.

The Stern Review on the Economics of Climate Change called climate change and the privilege to treat the atmosphere as a free waste dump as "the greatest market failure the world has ever seen." Nobel Prize winning economist Joseph Stiglitz incisively advises humanity that we should re-engineer the market system "to get incentives right". He writes that both developed and less developed countries share one planet, "and that global warming represents a real threat to that planet -- one whose effects may be particularly disastrous for some of the developing countries. Accordingly, we all need to limit carbon emissions -- we need to put aside our squabbling about who's to blame, and get down to the serious business of doing something. ...".

The modern materialistic and ideological gospel of free market forces has created stunning volatility in global oil prices over the past 10 years, causing the price to skyrocket to more than \$145 per barrel and then plummet to below \$30 per barrel at various points, in conjunction with geostrategic competition. Consider the ecological implications of this development. At the same time that a broad scientific consensus tells us that humanity faces an existential exigency to respect precautionary principles and significantly reduce carbon emissions into Earth's atmosphere, competition to exploit fossil fuel resources has intensified so much that global gluts of overproduction have taken place. Instead of intelligently putting a higher price on carbon emissions, we are basically allowing market forces to reduce prices and stimulate demand. We are thus forsaking the great market power of smart incentives and disincentives to positively influence human activities, in aggregate, and we are consequently choosing not to use the most effective means of reducing the dangerous profligacy of our collective drive to burn up crucially useful finite resources at nearly the fastest possible rate.

Perhaps even more detrimental than the dangerous increase in carbon dioxide in the atmosphere, global levels of methane have increased by about 250% since pre-industrial times, and are now at the highest measure in at least 800,000 years. Natural gas is made up mostly of methane. Atmospheric methane concentrations are very important due to the outsized impact of methane molecules on global warming. Methane is one of the most potent of greenhouse gases in Earth's atmosphere, having a global warming effect that is about 30 times more intense than carbon dioxide over a 100-year timeframe. Even worse, for complex reasons related to the laws of physics, methane has more than 80 times the heating impact of carbon dioxide over a 20-year time period.

It turns out that reducing methane emissions would be one of the fastest and cheapest ways to cut highly potent greenhouse gas emissions, according to experts at the Environmental Defense Fund. Here is a good strategic plan that would be cost effective and could reduce the estimated 25% of warming we are currently experiencing that is caused by methane. The Trump administration, predictably, has stubbornly tried to delay an Obama administration rule limiting methane leaks, and federal courts were forced to intercede.

Nations worldwide need to come together to act to reduce all forms of greenhouse gas emissions. We should find ways to work together to ensure that nations worldwide govern more responsibly. Oddly enough, one of the top priorities of Republican politicians in the U.S. since 2014 has been to reward their corporate coal, oil, natural gas and electrical energy supporters by reducing protections of the environment and hamstringing the Environmental Protection Agency. The EPA under Obama worked on commonsense carbon pollution limits from new and existing power plants, but corporate polluters and the billionaires like the Kochs and countless lobbyists and "conservative" political insiders are trying to stop even these inadequate baby steps in their tracks.

It is egregiously unethical for those who benefit from foisting the many costs of pollution and greenhouse gas emissions onto society to reap huge profits from their harmful actions. Privatizing profits by socializing costs is shrewd, but such efforts are unacceptable when the risks associated with such tactics are so costly. It is sad to see billionaires deny the far-reaching environmental harms that are resulting from industrial and political activities, and to realize how wealthy elites are using their ill-gotten riches to corrupt our national decision-making and prevent reforms that would help deal responsibly with the issue of anthropogenic climate disruption.

This influence peddling is public corruption, and it lends a nefarious and sadly true slant to the satiric view of Republican politicians articulated in 1991 by the American political satirist and journalist P. J. O'Rourke: "The Republicans are the party that says government doesn't work, and then they get elected and prove it."

When California Governor Jerry Brown spoke to a group of environmentally friendly mayors at a conference in the Vatican in July 2015, he pointed out the pathetic fact that deniers of climate change are spending "billions on trying to keep from office people such as yourselves, and elect troglodytes and other deniers of the obvious science." That sounded like a trump card! Since California has set the most stringent regulations on greenhouse gas emissions in North America, Jerry Brown was naturally a bit cynical about climate deniers, decrying their "fierce opposition and blind inertia", and criticizing their attempts to "falsify the scientific record" to persuade the American people that global warming is not happening, or is not being caused by human activities.

Stockholm Mayor Karin Wanngård intelligently indicated at the same Vatican conference: "Climate negotiators must dare to push boundaries and exclude fossil fuels as an option, and reward solutions that are long-term sustainable and recyclable." Stockholm is notably one of the leading cities in the world in using renewable energy resources, and its Mayor knows what she is talking about!

Entrepreneur and philanthropist Bill Gates made it clear that there is a new moral imperative in the world today when he declared: "I believe that with great wealth comes great responsibility -- the responsibility to give back to society and make sure those resources are given back in the best possible way, to those in need."

The Bible concurs with this sentiment. In Luke 12:48, it says: "For unto whomsoever much is given, of him shall be much required." A corollary of this idea -- that people with great wealth have really big responsibilities -- is the understanding that increased responsibility accompanies increasing amounts of influence. Those who wield outsized influence because of their wealth owe it to society to be responsibly magnanimous in helping make our societies better, rather than ripping off the populace and jealously obstructing progress by abusing their influence for selfishly shortsighted purposes.

The Insidious Politics of Fossil Fuels

Jeb Bush adopted a new strategy during his abortive run for the presidency, and it became a preferred stance by the Republican Party establishment. This strategy was to stop denying the science of climate change, "because that makes Republicans look stupid." Instead, the more sophisticated new tactic was to ramp up criticisms of every proposed solution, and declare they all cost too much, or are ineffective, unfair or will kill jobs. "You get the same gridlock, the same lack of action, but you're less of a target for mockery. We can already see other Republican presidential wannabes, like Carly Fiorina and Lindsay Graham adopting the same approach." (This was the point of view expressed by Lisa Hymas in a 2015 article in the online magazine *Grist*).

"The nexus between climate denial and massive funding from the fossil fuel industry is a nasty place for Republicans to be. They really need to clean up their act."

--- Senator Sheldon Whitehouse

Houston, we have a problem. The Houston metropolitan area comprises the largest petrochemical manufacturing area in the world, so perhaps it is understandable that it's such an odd hotbed of damn-the-consequences fervor for fossil fuel profiteering and bone-headed denial of the disastrous ramifications of the unfolding harms being caused by the reckless burning of coal, oil and natural gas. The huge concentration of wealth in the Houston area appears to be effective in actually convincing the preponderance of the Texas populace (and the excessive number of religious conservatives found there) into faithfully believing in anti-precautionary propaganda and harshly oppositional stands against progress toward a cleaner energy future.

The affluent portions of Houston consistently vote Republican, while many of the inner city areas vote heavily Democratic. According to the 2005 Houston Area Survey, 68 percent of non-Hispanic whites in Harris County, where sprawling Houston is located, are declared or favor Republicans while 89 percent of non-Hispanic blacks in the area are declared or favor Democrats. Big Money rules our country, so of course the biggest influence in Texas politics in recent years has been extreme conservatism, as evidenced by Texan stands against illegal immigration, women's reproductive rights and prerogatives, safe legal abortion, contraceptives, sensible criminal justice reform and responsible climate action.

Houston has adopted the nickname of "Space City" because it is home to NASA's Manned Spacecraft Center. But God seems to be taking vengeance on Houston for being Spaced Out when its affluent citizens champion denials of

the role that burning fossil fuels has on weather patterns, storm intensity and the potential for catastrophic flooding, and when they oppose honest efforts to address big problems like climate change that we confront in the world today. After the Southern Baptist God seemed to have sent biblical volumes of floodwaters into the Houston area for a third time in a year in April 2016, and then followed it up with an unprecedented 50 inches of rain delivered by Hurricane Harvey in August 2017, it may be becoming obvious that *What's the Matter with Kansas* is also what's the matter with Texas, Florida and the USA. Let's change course!

Houston, here we have another problem. Your city has deplorably given the nation Senator Ted Cruz, a pathetically objectionable contribution to incivility and wrongheadedness in our national politics. In a funny aside, the former Republican Speaker of the House John Boehner gave a talk at Stanford University in late April 2016, and was asked his opinion of Ted Cruz. He made a face, drawing laughter from the crowd. "Lucifer in the flesh," he declared. "I have Democrat friends and Republican friends. I get along with almost everyone, but I have never worked with a more miserable son of a bitch in my life."

Interestingly, Florida is possibly the most vulnerable of all states to rising sea levels and storm surge damages, so it is especially bizarre that, in a widely publicized action, former Republican Governor Rick Scott reportedly banned state officials from using the phrase "climate change." Sticking one's head in the sand is a dumbfounding foolish approach to looming risks. To ignore climate change is reckless. Most of the words in the last few pages were written before the unprecedentedly powerful Hurricanes Harvey, Irma and Maria blew ashore in 2017 and left costly calamities in their destructive wake. "Perhaps such powerful hurricanes will begin to change this cold calculus."

So-called "king tides" are already flooding low-lying areas in Florida, and saltwater intrusions and storm surges will get worse as thermal expansion and melting glaciers and ice sheets cause sea levels to rise. Interfaith groups have begun coalescing around the idea that a moral message will force Congress to take action on climate change, but the pace of this necessary development is too slow in light of the seriousness of the looming problems. And it is preposterously backwards with Donald Trump and Scott Pruitt in charge (followed by a coal lobbyist when Pruitt was forced to resign due to numerous scandals).

The Trump administration seemingly acted with deeply self-serving cynicism by eliminating funding for the NASA Carbon Monitoring System, a vital research program dedicated to tracking carbon in the atmosphere. This action is not merely a denial of climate change, but a refusal to even collect data. This move jeopardizes our ability to verify the national emissions reductions agreed to in the Paris climate accords, says Kelly Sims Gallagher, the director of Tufts University's Center for International Environment and Resource Policy. "If you cannot measure emissions reductions, you cannot be confident that countries are adhering to the agreement," she says, adding that canceling the Carbon Monitoring System "is a grave mistake."

We should rightly develop and implement practical solutions to help create a healthier environment and a safer world, and NOT bury our heads in the sand. Willful ignorance is not a sensible strategy in the face of mounting risks and escalating costs for inaction on mitigating climate change. We should work together to find good solutions to the most challenging environmental and global security issues of our time, as contributors to the Union of Concerned Scientists are committed to doing.

Strategic Initiatives

Senator Mitch McConnell identified his top priority as the Majority Leader in January 2015 as "to try to do whatever I can to get the EPA reined in." He not only wants to undermine environmental protections, but he also wants to block carbon pollution regulations for existing power plants and the landmark climate rules put into effect by the Obama administration. He said he feels a "deep responsibility" to stop the EPA from regulating carbon dioxide emissions from coal-fired power plants. A deep responsibility?! What he is really saying is that he feels a big OBLIGATION to the giant corporate fossil fuel interests that have been his biggest money donors and helped him get re-elected so many times. If he really felt a deep sense of responsibility, it would be to act in the best interests of the vast majority of people alive now, and those to come in future generations, and he would not be so staunchly opposed to reasonable measures that would deal fairly with the social and environmental problems that confront the U.S. and the world. Voters, DITCH MITCH!

Republican lawmakers are also assaulting rules related to mercury and other toxic emissions from power plants, and they oppose limits on ground-level ozone that causes smog. They damn the implications for people's health. They are opposed to restrictions on mountaintop removal coal mining and the EPA's attempt to exert its jurisdiction over streams and ponds. The Interior Department is also in the Republican crosshairs to prevent proposed new rules on fracking on public lands and protecting streams and groundwater from coal ash pollution and other toxic mining wastes. And Republicans want to reduce the size of National Monuments and allow currently protected areas to be open to drilling and fracking. These priorities are surely wrongheaded from a big picture perspective, and considerations of the long run. It would be a better plan to repeal the "Halliburton Loophole" that Congress created in 2005 to exempt fracking from key federal water and air protections.

Helping McConnell in his fight against the EPA is the "troglodyte" Senator Jim Inhofe. Staff writer Timothy Cama of *The Hill* observed: "Inhofe is an established enemy of Obama's EPA and skeptic of the scientific consensus on human-caused climate change, having written a book two years ago titled *The Greatest Hoax: How the Global Warming Conspiracy Threatens Your Future*." Inhofe has emulated demagogic ideologues by comparing the EPA to the Gestapo in Nazi Germany, and has pushed to roll back water and air pollution laws and ozone limits, and funding for contamination cleanup. Then Trump grabbed power and has appointed operatives to head the Environmental Protection Agency who are so eager to satisfy fossil fuel industry goals that they are in effect opposed to the agency's primary animating purpose of protecting human health and the environment.

Another Republican politician who often works against the greater good is Senator Lisa Murkowski of Alaska, who is the chairperson of the Energy and Natural Resources Committee in the Senate. She wants to further increase domestic energy production and exports, and she too expresses doubts about humans' responsibility for climate change. The motive for this doubt is real suspicious, because of its strong correlation to the narrow short-term self-interest of her Big Money donors.

Climate researcher James Hansen has called the collective international failure to limit carbon emissions, given the current evidence of impending unintended consequences, "an act of extraordinary witting intergenerational injustice". Not only do we know that increasing volumes of carbon dioxide emissions will be harmful to the prospects of people in coming years, but the fact that we are using up crucial non-renewable resources at almost the fastest rate possible is simply unconscionable. It is an abdication of responsibility to cast doubt on the overwhelming evidence that confirms that human activities are causing greenhouse-like global warming and destabilizing the global climate, especially when this is done to avoid having to take steps to ameliorate the dangers associated with changing weather patterns and rising sea levels and ocean acidification.

Professor Garrett Hardin once observed that short-term gains are generally given much heavier weight in decision-making than long-term losses and gathering risks. This is due to the nature of our political system and the unwarranted excessive influence of those who receive most of the short-term gains. At the same time, those who will suffer harms in both the short term and the long term are severely under-represented. A Bill of Rights for Future Generations would greatly help remedy the unjust nature of this myopic status quo.

Such a truly smart "strategic initiative" would be effective in helping us cope with climate change and ecological overshoot. Professor George Lakoff writes about strategic initiatives in his thought-provoking book, *Don't Think of an Elephant*. Such initiatives are plans that have broad impacts across many issues. For instance, cutting taxes is a plan championed by conservatives that accomplishes a wide range of objectives that they hold dear, like enriching wealthy supporters, ramping up pressure to restrict social program spending, and reducing the government's flexibility to regulate corporations and hold them accountable.

An example of a contrasting liberal strategic initiative is a progressively structured tax system, for it raises money to finance needed government functions and make investments in future well-being, and it does so in a way that is equal at every income level. Another example of a more liberal strategic initiative is the Endangered Species Act. This law helps protect species, and forces companies to mitigate the environmental harms they cause, and helps defend public lands from destructive exploitation, and makes it necessary to plan ahead more wisely with a long-term sustainable orientation.

The Endangered Species Act is America's strongest and most important law for protecting wildlife, so it is

particularly disturbing that a coordinated assault on it is being made by "conservatives" in the U.S. House and Senate. In the past few years, dozens of bills and amendments have been introduced that would dismantle the Act. This fusillade, sadly, is on-going.

Dr. Jane Goodall makes a sensationally valid point: "There's a saying, 'We haven't inherited this planet from our parents, we've borrowed it from our children.' When you borrow, you plan to pay back. We've been stealing and stealing and stealing. And it's about time we got together and started paying back." Jane Goodall is a highly respected primatologist and anthropologist who has a commendable concern for the well-being of animal life on Earth. In light of her personal efforts and those of the Jane Goodall Institute to make the world a better place, it is startling that our representatives in Congress are considering so many new ways to undermine the Endangered Species Act. Some of these bills would be so devastating to our ability to protect endangered wildlife that they have been fairly described in their consequential impacts as being an Accelerated Extinction Act. That's not good.

Note that nature is remarkably resilient, which is why populations of fish can recover if nursery habitats like estuaries, wetlands, mangrove swamps and coral reefs are given strong protections from damages. But the balance of nature is also a fragile thing, and it is a dangerous course of action to irreversibly upset a biological equilibrium state. Extinction is forever, so it would be a very good idea to make concerted efforts to restore the biotic health of entire ecosystems.

Climate change is curiously not yet included in the top causes that are driving various forms of life to extinction. According to scientific experts who study population declines and extinctions of megafauna and other species of animals and plants, the top causes of extinction involve:

- Direct human habitat destruction and fragmentation through logging, road building, and water diversions.
- Competition and indirect effects of invasive plants that have been introduced into new habitats where there are no animals to consume them or naturally check their growth.
- Grazing and/or trampling by feral pigs and domestic and feral horses, burros, cattle, goats and sheep, along with the adverse impacts of introduced predators and herbivores.
- Damages caused by wildfires and intentional burning. And,
- Exploitation by hunting, fishing, collecting, poisoning or trapping.

All these causes, interestingly, are related to human activities. Human beings have introduced many species of plants and animals, intentionally or inadvertently, to new habitats around the world. Some of these introduced species have had devastating effects on native species. The worst impacts on native species have been caused by introduced rats, feral pigs, predatory snakes, annual Mediterranean grasses, and a variety of other plants, animals and microbial pathogens.

The fact that climate change is not high on this list of causes of extinction does not mean that it is not a significant and growing threat to biotic well-being. One group of researchers studied 36 reptile and amphibian species in the U.S. and found that there is more than a 25% chance for each of them to become extinct by the year 2100. Then these researchers factored out climate change from this equation, and put the risk of extinction for these species at less than 1% during this time frame. This indicates that climate change will cause dramatic increases in risks of extinction as the century wears on.

The bottom line is that climate change is probably the single worst failure of free-market economic systems, for it creates a risk that the externalized costs related to greenhouse gas emissions will undermine the prospects for future prosperity, and may even eventually threaten the survival of our own species.

Conservation biologists emphasize that the most important consideration in the long run is for us to make sure our development and consumer activities do not in effect chop down the tree of life that providentially provides for our flourishing and survival. All of our national decisions should take into account the biotic well-being of life on Earth above other factors.

Philippine Typhoon Shakes Up the Status Quo

A growing clamor is erupting about climate injustices involved in climate change. Poorer countries are suffering extremely costly damages for climate catastrophes like the devastating typhoon that killed thousands of people in the Philippines in November 2013 and the destructive hurricanes that hit Texas, Florida and Caribbean islands in the summer of 2017. Threats of rising sea levels also disproportionately affect nations that are not big contributors to greenhouse gas emissions, like Bangladesh and many low-lying Pacific islands.

Some said that the Philippine typhoon may have been a sign from God, being that it came at the same moment that an international climate change conference was taking place in Warsaw, Poland. Whether God really sent this message or not, Mother Nature is definitely experiencing more extreme weather events than usual, as judged by a sharp increase in the costs of natural disasters in the past two decades. One factor contributing to this outcome is that there are more people on the planet than ever before, putting increasing numbers of people in harm's way. This Population Connection should not be ignored any longer!

Climate change conferences have been taking place annually since 1995. They had started after an international environmental treaty was signed during the 1992 Earth Summit in Rio de Janeiro. That sensible treaty led to the creation of the United Nations Framework Convention on Climate Change, which had a primary purpose "to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".

Opposition to fairly addressing this growing international problem is strong, so the challenge is enormous. And emotions are running high, especially within the Group of 77 developing nations, established in 1964 (it currently includes 134 countries). These are relatively poor nations that are experiencing serious hardships due to natural disasters, and they have a convincing argument when they assert that richer developed nations have a moral obligation to shoulder more of the costs of risk mitigation and climate disasters in their countries. These disasters include hurricanes, tornadoes, coastal flooding, disappearing arable lands, intensifying droughts and wildfires, and creeping desertification. Rich countries, after all, are the ones that have spewed the most emissions into the atmosphere in the last century and have thus contributed most to the growing climate crisis.

It would be in everyone's best interests, and fairer, for rich developed nations to help developing nations make their economies greener, and to help them adapt to climate shifts, and to cover more of the costs of damages caused by an overall global warming. In *Existence, Economics, and Ecological Intelligence*, I explain:

"To address these challenges, some people propose the creation of a climate disaster insurance fund. Others advocate a Green Climate Fund with at least \$100 billion in annual contributions. This amount is modest, considering that Superstorm Sandy in the U.S. alone cost about \$75 billion. The most sensible plan would be to require fees in every country on all sales of crude oil and coal and natural gas to finance such a fund. This idea of properly designed incentives and disincentives, boldly implemented, is one of the best plans for making our societies healthier and more sustainable. A 'Pigou Club' of prominent economists and pundits recommends that we enact higher gasoline taxes or other forms of carbon emissions taxes. The purpose of these taxes would be to allocate a higher price to the burning of fossil fuels, so that cost externalities associated with risks created by our dangerous addiction to these sources of energy would be reduced. Pigouvian taxes like this would serve to reduce the rate of increase in the quantities of greenhouse gases we are spewing into the atmosphere every year. We should listen to these Pigou Club experts in this regard. They include a wide range of people like Paul Volker, Alan Greenspan, Bill Gates, Jeffrey Sachs, Paul Krugman, Joseph Stiglitz, Robert Reich, Lawrence Summers, Michael Bloomberg, Al Gore, Bernie Sanders, Thomas Friedman, and even Arthur Laffer, Charles Krauthammer and Grover Norquist."

Meanwhile, global emissions continue to rise. This is a main reason why the U.N. Environmental Program is warning that immediate action must be taken to reduce emissions enough to limit the rise in average global temperatures to 2 degrees Centigrade above preindustrial levels. "That is the maximum warming that many scientists believe can occur without causing potentially catastrophic climate change."

Currently, the biggest emitters of carbon dioxide are China, the United States, India, Russia, Japan, Germany and Iran. A different picture emerges when emissions are ranked on a per capita basis, where places like Qatar, Kuwait, Brunei, the United Arab Emirates, Oman and Bahrain top the list and the U.S. is 12th, Russia is 22nd, Japan

is 37th, China is 63rd, and India is 136th. And an even different picture would be revealed by an analysis of which countries have emitted the most greenhouse gases in the past 40 years, during which time the concentration of carbon dioxide in the atmosphere increased from 350 ppm to over 400 ppm. Taking all these factors into account would be the fairest way to formulate a fee structure to finance the Green Climate Fund.

Another Assessment

The Obama administration unveiled the Third U.S. National Climate Assessment in May 2014. This insightful report confirmed that climate change is affecting Americans right now in every region of the U.S., and in key sectors of the national economy. The report was a "key deliverable" of President Obama's Climate Action Plans, and it is the most comprehensive and authoritative scientific report ever generated about climate changes that are happening in the U.S., and further changes that can be expected to take place throughout this century. The report laid out in detail what global warming means for the country.

"Climate change is not a distant threat; it's already affecting the U.S.," said John Holdren, then director of the White House Office of Science and Technology Policy, in a conference call with reporters about the report. "This is the largest alarm bell to date. Negative effects of climate change are happening right now, so this knowledge should be a strong factor in motivating us to support remedial change."

These findings underscored the need for urgent action to combat the threats from climate change and protect American citizens and communities today, and to build a healthy and sustainable future for our children and grandchildren. The report provides details on certain types of extreme weather events that are linked to changes in the global climate and have become more frequent or intense, including prolonged periods of heat, drought or flooding. In addition, warming is causing sea levels to rise and glaciers and polar sea ice to melt, and oceans are becoming more acidic as they absorb carbon dioxide. These and other aspects of climate change are disrupting people's lives and damaging some sectors of our economy.

The report communicated the impacts of climate change according to geographic regions of the U.S., and by economic and societal sector -- including agriculture, energy and health. These tailored findings help translate scientific insights into practical, usable knowledge that can help decision-makers and citizens anticipate and prepare for specific climate-change impacts.

The assessment was the result of a three-year analytical effort by a team of over 300 climate scientists and experts, informed by inputs gathered through more than 70 technical workshops and stakeholder listening sessions held across the country. The resulting product was subjected to extensive review by the public and by scientific experts, in and out of government. This process of unprecedented rigor and transparency was undertaken to ensure that the findings of this report rest on the firmest possible base of expert judgment.

Unfortunately, President Obama's efforts to combat global warming by regulating emissions from coal-fired power plants suffered a major setback when the Supreme Court temporarily blocked the administration's Clean Power Plan and then Justice Antonin Scalia died soon thereafter, leaving the Supreme Court deadlocked on many ideologically divided issues. The extremely partisan outcome of the effort to stack the Supreme Court with more extreme conservatives is having negative impacts on the health of planetary ecosystems. After blocking a well-qualified Obama nominee for almost a year, Republicans changed long-standing Senate rules to put Neil Gorsuch, an excessively corporate-friendly conservative on the Supreme Court, boding ill for human well-being. With the illegitimate triumph of Trump Republicans in grabbing power, this calculus has shifted even further in the wrong direction, and the highly politicized Trump choice of Brett Kavanaugh and then Amy Coney Barrett for lifelong positions on the Supreme Court likely will make this situation worse.

The distinguished Goddess of Irony again floats down from her abode in the sky, heaven knows where, into Earth's troposphere, and shines a trillion-watt spot on the Supreme Court building during the dark of the night, dramatically illuminating the sorry state of our supremely divided court. Etched into the marble edifice of the Supreme Court Building, and highlighted by its classical Corinthian architectural style, are the words *Equal Justice Under Law*. "Hey, wait," I think, "this is the USA." E Pluribus Unum -- "Out of Many, One." UNITED States of America. Democratic fairness. The General Welfare clause of the Constitution. Let's rise up and demand that

"conservatives" stop their absurd perversions of justice, sanity and the common good.

Psychology, Introspection, and Appropriate Action

Most of us recognize that climate change is real, and yet we do nothing to stop it. What is this psychological mechanism that allows us to know something is true but act as though it is not? George Marshall searched for the answers to this question in his book *Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change*.

"George Marshall is one of the most interesting, challenging and original thinkers on the psychology of our collective climate denial. If his advice were heeded, we might just have the courage to look unblinkingly at this existential crisis, and then to act."

--- Naomi Klein, author of *This Changes Everything*, and of *The Shock Doctrine*

Marshall talks in this book with Nobel Prize-winning psychologists and activists of the Texas Tea Party, as well as the world's leading climate scientists and the people who denounce them, and liberal environmentalists and conservative evangelicals. What he discovered is that our values, assumptions and prejudices can take on lives of their own, gaining authority as they are shared, dividing people in their wake.

With engaging stories and drawing on years of his own research, Marshall argues that the answers do not lie in the things that make us different and drive us apart, but rather in what we all share: how our human brains are wired, our evolutionary origins, our perceptions of threats, our cognitive blind spots, our love of storytelling, our fear of death, and our deepest instincts to defend our family and tribe. Once we understand what excites and threatens and motivates us, we can rethink and re-imagine climate change, for it is not an impossible problem to solve. Rather, it is one we can better control if we can make it our common purpose and common ground.

This is a book addressed to those who think the science is settled, and that future developments are potentially catastrophic, and that climate-change deniers are the deluded or bought-off victims of oil companies. Marshall, a British climate-change activist, does recognize the truth of Upton Sinclair's remark a century ago -- that it can be very difficult to convince someone of a truth that will destroy their livelihood -- but his aim is to convince his side that opposition is rooted in far more than naked self-interest.

Beyond outright ideological deniers and a few scientific skeptics, Marshall argues, lie the people who will decide the future, for good or ill, "the unconvinced." To understand them, Marshall spent years talking to experts in psychology, risk perception, linguistics, cultural anthropology and evolutionary psychology, and to hundreds of ordinary people. He discusses how humans interpret the world in the light of recent experience and basic attitudes. The phenomenon of "confirmation bias" tends to lead people to look for information that reinforces their preexisting impressions, and the Internet provides an echo chamber more impervious to opposing voices than anything before it. We want to fit into our social groups, and take cues for how we should think from the people around us. And people don't treat science as a neutral source of unbiased information.

"Most importantly, humans have evolved to deal with short-term dangers, where our rational and emotional brains work in tandem. But climate catastrophe is a long way off -- in terms of human danger signals -- and every specialist Marshall spoke to agreed that we have still not found a way to effectively involve our emotional brains in it. Deniers and believers are fully engaged, but most people are still in wait-and-see mode, with their rational brains aware there is a problem and their emotional brains looking about them to see how to respond. But "both of their brains are sufficiently detached that they do not have to deal with the problem unless actively compelled to do so."

Those who want to rally the world against the disaster they see coming, Marshall concludes, must avoid adding social and psychological factors to the already powerful economic forces opposing good solutions. He then ends with seven pages of valuably shrewd and ethical advice on just how to do that. The Washington Post observed: "In the end, Marshall is neither fatalistic nor idealistic about our chances of survival. Yes, he says, we're wired to ignore climate change. But we're also wired to do something about it."

A Profoundly Perplexing Existential Paradox

A perplexing paradox confronts humanity in the world today. We rely on instinctive impulses and conditioned habits that motivate us to consume and use up natural resources with little regard for the sustainability of these resources to provide for the needs of people in the future. Our growth-addicted capitalist economic system relies on marketing-stoked desires and materialistic compulsions that are rapidly wiping out native wildlife, depleting mineral and fresh water resources, and driving many species of life toward eternal extinction. At the same time, we are allowing many costs of pollution and toxins and waste and ecological damages to be foisted upon the providential commons. In addition, our biological compulsion to reproduce is becoming a Faustian bargain with the devil, because many people want to have unlimited freedom to have children, whether or not they can afford to raise them, and irrespective of natural limits of the carrying capacity of Earth's natural ecosystems to support our burgeoning human numbers and expanding demands.

Henk Ovink, a Dutch climate-change guru, says that planning for climate change requires a sweeping societal transformation -- in personal habits, in the way cities are planned, in the resources we extract, transport and exploit, in the politics of energy. The paradox is that it also demands a combination of urgency and patience. "We have no time to waste, but we also have to think in terms of generations to come. Cultural change never comes overnight."

Caged canaries were carried into coal mines for many years to serve as early warning systems to alert miners of dangerous buildups of methane or carbon monoxide that could kill them in underground mines. Today, scientists are symbolically serving as similar early indicators of dangerous conditions by warning us of great dangers associated with deteriorating conditions on Earth caused by uncontrolled emissions of heat-trapping greenhouse gases into the atmosphere. An estimated 97% of all climate scientists agree that there are far-reaching risks of climate change, and the other 3% are generally being paid by well-funded interest groups to sow doubt about this issue. Astonishingly, something like 40% of Americans believe there is some doubt that our rash burning of fossil fuels is creating ever-more costly natural disasters and proliferating future risks. It is as if these doubters believe that the temperature in a greenhouse might actually be cooler than outside it. We should heed scientific warnings, not deny them -- this is a moral imperative!

Senator Whitehouse Weighs In

Rhode Island Senator Sheldon Whitehouse tells us, "Wake Up!" Senator Whitehouse made his 100th weekly speech in the Senate on the issue of climate change on May 18, 2015, decrying "the sophisticated scheme of denial being conducted by the polluters." Here are some of his incisive observations:

Climate change tests us. First, it is an environmental test, a grave one. We will be graded in that test against the implacable laws of science and nature. Pope Francis has described a conversation with a humble gardener who said to him: "God always forgives. Men, women, we forgive sometimes. But, Father, creation never forgives."

There are no do-overs, no mulligans -- not when we mess with God's laws of nature. Behind nature's test looms a moral test. Do we let the influence of a few wealthy industries compromise other people's livelihoods, even other people's lives, all around the planet and off into the future?

It is morally wrong, in greed and folly, to foist that price on all those others. That is why Pope Francis is bringing his moral light to bear on climate change, and to quote him: "There is a clear, definitive and ineluctable ethical imperative to act." Our human morality is being tested.

Anybody who is paying attention knows those special interests are lying. Anybody paying attention knows they are influence-peddling on a monumental scale. And while the polluters have done their best to hide that their denial tentacles are all part of the same denial beast, people all over who are paying attention have figured it out.

"If you are a Senator who is not sure climate change is real, manmade and urgent, ask your home State University. Even in Kentucky. Even in Oklahoma."

Dr. Riley Dunlap of Oklahoma State University assessed the "organized climate-denial machine." He found that nearly 90 percent of climate-denial books published between 1982 and 2010 had ties to conservative fossil fuel-funded think tanks, such as the Heartland Institute. In other words, it is a scam.

One day, there will be a reckoning. There always is. If we wake up, if we get this right, if we turn that ponderous balance of destiny in our time, then it can be their reckoning, and not all of ours.

Anthropogenic climate disruption is happening across the globe, and Pope Francis has become outspoken in asserting that climate change will "affect all of humanity, especially the poorest and future generations. What's more, it represents a serious ethical and moral responsibility." So we need to responsibly embrace a forward-looking movement to change the dangerously retrograde aspects of the status quo. Interestingly, social and political change doesn't take place as a steady and incremental process, but instead it proceeds through a kind of punctuated equilibrium of relatively long periods of stability, interrupted by sudden bursts of rapid change that are "catalyzed by disruptions in pre-existing systems".

These destabilizing developments create instability that tends to shatter conventional ways of doing things, often freeing up resources and leading to fundamental reorganizations of economic, social and livelihood systems. Natural disasters like floods and droughts can be one form of this powerful impulse for change. In the immediate aftermath of a natural disaster, people are much more aware of the risks they face and the factors contributing to their vulnerability, so the physical and social disruption that disasters bring often upsets the entrenched status quo. Economic, social, and political systems then come under greater scrutiny for putting people at risk, and greater pressure arises for the underlying risks to be dealt with fairly. Also, an influx of disaster relief assistance can provide necessary resources to facilitate changes that would be impossible under normal circumstances. Thus, disasters and crises provide a window of opportunity during which real social change can occur.

Solar Observations on Climate Change

Commentator Jonathan Chait penned an intriguing article in the September 7, 2015 issue of *New York Magazine* titled *This Is the Year Humans Finally Got Serious About Saving Themselves From Themselves*. Chait noted:

"Here on planet Earth, things could be going better. The rise in atmospheric temperatures from greenhouse gases poses the most dire threat to humanity, measured on a scale of potential suffering, since Imperial Japan and Nazi Germany launched near-simultaneous wars of conquest. And the problem has turned out to be much harder to solve. It's not the money. The cost of transitioning away from fossil fuels, measured as a share of the economy, may amount to a fraction of the cost of defeating the Axis powers. Rather, it is the politics that have proved so fiendish. Fighting a war is relatively straightforward: You spend all the money you can to build a giant military and send it off to do battle. Climate change is a problem that politics is almost designed not to solve. Its costs lie mostly in the distant future, whereas politics is built to respond to immediate conditions. (And of the wonders the Internet has brought us, a lengthening of mental time horizons is not among them.) Its solution requires coordination not of a handful of allies but of scores of countries with wildly disparate economies and political structures. There has not yet been a galvanizing Pearl Harbor moment, when the urgency of action becomes instantly clear and isolationists melt away. Instead, it breeds counterproductive mental reactions: denial, fatalism and depression."

"This fall, as world leaders prepare to gather in Paris for the United Nations climate-change conference in December and bureaucrats bureaucratize, onlookers could be excused for treating the whole affair with weariness. As early as the 19th century, scientists had observed that the release of carbon dioxide into the atmosphere trapped heat that would otherwise have escaped into outer space. It took until 1997 for the U.N. to draw up a rough deal, in Kyoto, Japan, designed to arrest what was by then obviously a crisis. The agreement failed ... which didn't stop the Republicans in the U.S. Senate, who hoped to use the treaty as fodder for attack ads, from bringing the moribund issue up for a vote -- where it failed again, 95-0."

"For humans to wean ourselves off carbon-emitting fossil fuel, we will have to use some combination of edict and invention -- there is no other plausible way around it. The task before the world is best envisioned not as a

singular event but as two distinct but interrelated revolutions, one in political willpower and the other in technological innovation. It has taken a long time for each to materialize, in part because the absence of one has compounded the difficulty of the other. It is extremely hard to force a shift to clean energy when dirty energy is much cheaper, and it is very hard to achieve economies of scale in new energy technologies when the political system has not yet nudged you to do so."

"And yet, if you formed a viewpoint about the cost effectiveness of green energy a generation ago (when, for instance, Ronald Reagan tore the costly solar panels installed by his predecessor off the White House roof), or even just a few years ago, your beliefs are out of date. That technological revolution is well under way."

"For one thing, the price of solar is falling, rapidly. In a March 2011 post for *Scientific American's* website, Ramez Naam, a computer scientist and technological enthusiast, compared the rapid progress of solar power to Moore's Law, the famous dictum that described the process by which microchips grew steadily more useful over time, doubling in efficiency every two years. The price of solar power had fallen in two decades from nearly \$10 a watt to about \$3. By 2030, he predicted, the price could drop to just 50 cents a watt."

"Four years later, Naam revisited his post and admitted his prediction had been wrong. It was far too conservative. The price of solar power had already hit the 50-cent threshold. In the sunniest locations in the world, building a new solar-power plant now costs less than coal or natural gas, even without subsidies, and within six years, this will be true of places with average sunlight, too. Taller turbines, with longer and more powerful blades, have made wind power competitive in a growing swath of the country (the windy parts). By 2023, new wind power is expected to cost less than new power plants burning natural gas." ...

"Of course, it is unfortunate for the future of mankind that climate-change denialism has surfaced as a regional quirk in the most powerful country on Earth. The fossil-fuel industry has invested heavily in U.S. politics and can surely take some credit for the Republican Party's positions, but conservative resentment of climate science is more deeply rooted and pathological than economic influence can fully explain. Distrust of the scientific community by conservatives has steadily increased over the last four decades. Even as the coal industry has collapsed, and American solar firms now employ twice as many people, the Republican affiliation with coal as a cherished way of life has deepened. Conservatives' association of science with the liberal agenda has hardened Republican resolve to do nothing to limit climate change, which has, in turn, deepened the association of science with the liberal agenda. Increasing evidence of climate change does not halt this vicious cycle. It may actually accelerate it by fomenting resentment. An alarming social study from June found that climate skeptics who read reports about natural disasters were less likely to favor helping the victims if the story connected the disaster to climate change."

"The Republican view that climate change is uncertain, overblown, or nonexistent has run alongside a long-standing skepticism about international diplomacy. Conservatives treat the prospect of a global agreement to limit emissions as not merely a challenge (which it is), but a conceptual impossibility. The presumed impossibility of getting other countries in general, and China in particular, to cut back on greenhouse gases featured heavily in Republican denunciations of cap-and-trade during Obama's first two years. They have greeted China's agreement to do this very thing with scorn. When Obama negotiated a bilateral pledge with China, conservatives howled, predicting disaster. But they were unable to thwart the deal, and now they dismiss China's emissions pledges as too easy to fulfill.

"The limits agreed to at Paris will not be enough to spare the world mass devastation. But they are the beginning of a framework upon which progressively stronger requirements can be built over time. The willpower and innovation that have begun to work in tandem can continue to churn. Eventually the world will wean itself almost completely off carbon-based energy. There is, suddenly, hope."

Sadly, a devious demagogue became president in January 2017, and this development has torpedoed this hope by leading the U.S to withdraw from the agreement reached in Paris by representatives of 195 nations.

An Aside on the Issue of Nuclear Power

Good arguments can be made that nuclear power is a potentially good solution to the climate crisis, because of the

fact that nuclear plants produce electricity without emitting greenhouse gases. New York Times columnist Eduardo Porter offered a superficially convincing argument for nuclear power as a solution to the crisis being caused by copious quantities of carbon dioxide emissions. He also launched a salvo at liberal biases that is valuable, but curiously unbalanced. I encourage readers to read his provocative article *Liberal Biases, Too, May Block Progress on Climate Change*. I also recommend the article by Amanda Marcotte, *Eduardo Porter and the NY Times are wrong on climate change: It's absurd to paint liberals as misguided as conservatives on the crisis*.

There are, of course, also good arguments against nuclear power from the standpoints of high construction and maintenance costs, long-lasting radioactive wastes, future risks and liabilities, and the centralized nature of nuclear power plants compared to distributed power sources like much safer and less expensive solar power. Here is one interesting excerpt from Eduardo Porter:

Ted Cruz's argument that climate change is a hoax to justify a government takeover of the world is absurd. But Bernie Sanders' arguments that "toxic waste byproducts of nuclear plants are not worth the risks of the technology's benefit" might also be damaging.

Think about this line of argument. Amanda Marcotte presents Eduardo Porter's perspective on Ted Cruz and Bernie Sanders in a dramatically different light. She writes: "The first is an outright falsehood and conspiracy theory, the equivalent of believing our nation is being secretly controlled by an alien race of lizard people. The second is a values assessment. Sanders isn't denying some of the clean energy benefits of nuclear energy. He's arguing that the risks are too high. He's not disagreeing on facts, but the interpretation of those facts."

Eduardo Porter also wrote: "People identified as more egalitarian and more open to government interventions to address social ills -- the left, as it were -- were much more likely to say that most scientists agree global warming is happening and that it is caused by human activity. Most also said scientists either disagreed or were divided on the safety of storing nuclear waste. On the right, people identified as individualistic and wary of Big Government responded differently: In their view, the scientific consensus said the opposite. How could they think that? They manufactured the expert consensus they wanted by defining as experts only those who agreed with their ideological position."

Ms. Marcotte makes some excellent counterpoints about Porter's opinions. She observes:

"Both-sides-do-it-ism is one of most irritating bad habits of the modern punditry, a tic some writers get where they confuse being fair with pretending that liberals and conservatives are equally guilty of some political sin. It was always a cowardly, lazy habit, but it's become even more inexcusable in the past decade as it becomes clear that the right is exponentially worse when it comes to lying, stoking conspiracy theories, and destructive behavior."

"But that doesn't mean some foolhardy folks won't still try, ignoring actual evidence in favor of pushing the pox-on-both-houses narrative at all costs. Eduardo Porter of the New York Times published a piece on Tuesday that is a gallant if failed (and really, pointless) effort at really hammering this both sides fallacy."

"*Liberal Biases, Too, May Block Progress on Climate Change*, the headline reads, and Porter goes on to try to argue that the same forces that lead to conservatives engaging in climate change denial are somehow infecting liberals, as well. Except, in a great stroke of irony that Porter really should have noticed, the evidence isn't there, and his argument seems to be based more on wishful thinking than the facts."

"Sanders has a lower tolerance for the risks associated with nuclear waste than the 65% of members of the American Association for the Advancement of Science. That does not make him a conspiracy theorist or someone denying the facts. The conservative equivalent would be accepting that climate change is real but arguing that you still prefer driving a gas guzzler over reducing emissions. But conservatives don't make straightforward values arguments, like Sanders did. They lie about the facts, trying to convince people climate change is a hoax." ... "He goes on to cite studies, which are perfectly sound, showing people's willingness to accept a scientific study depend on whether it conflicts with their political values or not. And it's true that these studies show that liberals are often just as bad as conservatives about denying studies that conflict with their views, even if those studies are sound."

"But even though Porter is supposedly writing about climate change, he does not produce a single instance where liberals hold incorrect beliefs on the science of climate change. Which seems like it should be a baseline requirement for arguing that liberals are just as bad as conservatives when it comes to science denial around climate change. For someone who purports to be anti-bias and pro-evidence, Porter brings a lot of bias but not a lot of evidence to his theory."

Other Assessments

The Intergovernmental Panel on Climate Change released its fifth assessment of climate-change science in early 2014. Its underlying message focused on the impacts of climate change, ranging from effects on endangered species to changes in agriculture. The report showed just how wide-ranging the effects of a warming world will be. "We have assessed impacts as they are happening in natural and human systems on all continents and oceans," said Rajendra Pachauri, then chair of the IPCC, which was jointly established by the United Nations and the World Meteorological Organization. "No one on this planet will be untouched by climate change."

The report predicts with high confidence that the negative impacts of warming on crop yields will outweigh any potential positive impacts; that violent conflict will exacerbate the effects of global warming; that glaciers will continue to shrink as the climate warms, having major impacts on water supplies; that species on land and in the sea are shifting their range in response to warming and that some will face an increased risk of extinction; that health impacts will be felt from heat waves and from floods in low-lying areas; and that the seas will continue to acidify, destroying coral reefs. Coral reefs are extraordinarily beautiful ecological communities, and they will probably be "the first major ecosystem in the modern era to become ecologically extinct", and to do so by the end of this century. That would be an ominous tragedy for life on Earth.

According to the IPCC, the world's average temperature has risen by about 1.5 degrees Fahrenheit since 1900. By 2100, it predicts it will rise by another 2 to 12 degrees, depending upon the levels of greenhouse gases we spew into the atmosphere. Asked to give its latest position on climate change, the National Oceanic and Atmospheric Administration said in a statement that observations collected by satellites, sensors on land, in the air and seas "continue to show that the average global surface temperature is rising."

The statement said "the impacts of a changing climate" were already being felt around the globe, with "more frequent extreme weather events of certain types (heat waves, heavy rain events); changes in precipitation patterns ... longer growing seasons; shifts in the ranges of plant and animal species; sea level rise; and decreases in snow, glacier and Arctic sea ice coverage."

Deep ecologist Bill McKibben writes, "... 2015 looks like it will replace 2014 as the hottest year ever recorded; the U.S. has just come through the rainiest month since we began keeping track; our biggest state is mired in its deepest drought. Mother Nature may not have a super PAC, but she has her own ways of focusing attention." As it turned out by 2018, after the year 2015 became the warmest year ever recorded in human history, 2016 broke this record. And Hurricanes Harvey and Irma and Maria in 2017 make scientific predictions of intensified storms due to the greenhouse effect seem amazingly accurate. So it has gone since then, and a record high 130 degree temperature in Death Valley in the summer of 2020 may be the hottest temperature ever confirmed on the planet.

Extreme Weather and Extreme Political Calculations

A message to Texans. Maybe God was sending you an unmistakable sign when His severe drought in Texas and Oklahoma suddenly gave way to unbelievably heavy rains and flooding of almost biblical proportion in late May 2015. Scientists say that there will be both worse flooding and worse droughts in locales around the globe as greenhouse gas concentrations continue their fossil fuel accelerated accumulation in the atmosphere, and as the resulting increasing heat energy on land and in the oceans and atmosphere alters climatic conditions and creates more dangerously unstable weather patterns.

Texans were delivered a wake-up call again in November 2015 when remnants from Hurricane Patricia delivered more than a foot of rain in Houston and other locales. This hurricane was the most powerful tropical storm ever recorded in the history of the Western Hemisphere, with winds topping out at 200 miles per hour before it made landfall. The awe-inspiring power of this tropical storm was correlated to a record El Niño warming of ocean

waters to the west of Peru, a phenomenon known to cause dramatic changes to the atmosphere and alter weather patterns worldwide. Then, in August 2017, after Hurricane Harvey's torrential rains dropped 50 inches of precipitation in the Houston area, the wake-up call became a jangling alarm.

Texas Senator Ted Cruz raised eyebrows just after he declared he was running for president in 2015 when he told the Texas Tribune that people who believe global warming is real are "the equivalent of the flat-Earthers". This expressive piece of dogmatic deception alone should have disqualified him from being our national leader, and it should also have disqualified him from his position as the chair of the Senate Subcommittee on Space, Science and Competitiveness, which oversees the funding of NASA. Houston, we have a problem! It is crazy to have a climate change denier in charge of this important group in the Senate!

Knowledge is the key to future well-being, and ignorance, delusion and denial are counterproductive. Exit the echo chambers, Americans! -- Exit those echo chambers in particular that are amplified by fossil fuel industries and lobbyists for meat-producing businesses and other big corporations promoting anti-regulatory and anti-environmental ideologies. Effective action is needed, and we can no longer cling to our profligate habits, or stubbornly oppose the ultimate moral imperative of protecting creation.

The political commentator Molly Ivins, a Texan, once assessed some of the lame-brained actions of conservative Texas legislators, and declared (paraphrased for context): "If ignorance goes to one hundred dollars a barrel, I want drilling rights to their heads." Yes, indeed!

The first episode of epic flooding that took place in Texas suddenly ended a harsh near-record drought in that region. That same week, more than 2,100 people died in a heat wave in India that featured temperatures of up to 118 degrees. The signs from nature that overall warming trends are disrupting the global climate are starting to be truly concerning, especially because scientists, the truly visionary prophets of today, have been predicting more intense events like this as a consequence of global warming trends.

Alarm bells are going off in the control room of our ship of state, and those who say we should ignore the alarms put us in greater danger. Leaders of the religious right often join conservative front groups to label "creation care" understandings as "anti-capitalist", but the mounting evidence makes a mockery of such ideological spin. The reasons for such retrogressive attitudes are numerous. Climate change denial can be attributed to people who think environmentalists are "leftists" or alarmists, or who distrust scientific knowledge because it confirms Charles Darwin's extraordinary epiphany about biological evolution, or who trust in free-market economics and distrust solutions involving adaptive government rules and regulations, or who are religious fundamentalists that think God told mankind to have dominion over the Earth and thus rationalize doing whatever we want with it.

Big Money fuels this intense opposition to taking morally responsible steps to protect creation. It sponsors Merchants of Doubt that prey on people's fears about climate action, and stokes opposition to it. But true and honest and fair-minded conservatives would be strong supporters of resource conservation and of precautionary principles oriented toward preserving the providential ecological foundations of human well-being.

Radical Change is Needed, not Just Baby Steps -- and not Rashly Wrongheaded Authoritarian Rule

Gar Alperovitz, a democracy advocate and historian, and Gus Speth, a pioneering environmental leader of long standing, are trying to create a new voice -- actually many voices -- for the future. Activists and thinkers will be drawn from the academic circles and grassroots communities that are dealing directly with the pain and loss people are experiencing. Their core objective is to encourage people to think anew about deeper structural change, and also how "to make themselves heard amid the dreary evasions of established power."

Speth and Alperovitz call this new collaboration of intellectuals and organizers the Next System Project. More than 350 reform-minded thought leaders have signed on to participate. "The first thing we are trying to do is make it okay to talk about this subject," Alperovitz explained. "Because otherwise people talk about projects and policies rather than asking if there's a systemic crisis and how we can deal with a much larger situation. What would it take to imagine a next system when it is clear now that both corporate capitalism and state socialism are failures?"

The spirit of this venture is captured in the title of Naomi Klein's book, *This Changes Everything: Capitalism vs.*

The Climate. And in Gar Alperovitz's book *What Then Must We Do? Straight Talk about the Next American Revolution*. And in Gus Speth's *America the Possible: Manifesto for a New Economy*. And in William Greider's *The Soul of Capitalism: Opening Paths to a Moral Economy*.

"We believe that it is now imperative to stimulate a broad national debate about how best to conceive possible alternative modes of a very different system capable of delivering genuine democracy and economic equality, individual liberty, ecological sustainability, a peaceful global foreign policy and a thorough culture of cooperative community based on non-violence and respect for differences of race, gender and sexual preference."

Unfortunately, Donald Trump grabbed power and is acting like a deceiving traitor to working class people, for whom he claims to care. While many blue-collar workers regard him as a working-class hero for his brash diatribes and outlandish tweets, these angry white folks who flocked to his rallies and voted for him are being betrayed by him as president. "Of all the parts Trump has been playing, this one is the phoniest." He has been betraying working people for decades. He declared while a candidate, "wages are too high", even though wage stagnation is the most glaring symptom of a declining middle class. And, as he is pushing to destroy Obamacare, he is undermining the future well-being of millions of poor people and seniors and people with "preexisting conditions", for the clear purpose of giving bigger tax breaks to the wealthy. And he is running up the national debt to stimulate the economy and reward Big Money donors.

Let's Recognize the Value of a Healthy Democracy!

Republicans controlled 70 percent of state legislatures and more than 60 percent of governor's offices until the 2018 elections -- and this status has a profoundly detrimental impact on the lives of millions of Americans.

A healthy democracy is essential to a healthy environment. Otherwise, wealthy individuals and big corporations rooted in polluting industries will continue to flood our political system with big money and spend record amounts on campaign contributions to politicians with dismal records on votes for clean energy and climate action. This is an aspect of crony capitalism must be changed!

Let's elect more women to Congress, for there is broad truth in Dee Dee Myers observation: "Research confirms that both Republican and Democratic women are more likely than their male counterparts to initiate and fight for bills that champion social justice, protect the environment, advocate for families, and promote nonviolent conflict resolution."

In an entertaining development, Pope Francis appeared to sweep Washington off its feet when he visited the United States in September 2015. Because of his gentle grace, disarming humility and penchant for saying "God bless America" like he means it, cheering throngs accompanied his every move. The powerful and powerless alike made a fuss. Take Senator Lisa Murkowski, the Alaska Republican who represents the oil industry. She all but swooned over "the love that this man radiates", after the Pope blessed her rosary beads. Minutes earlier, Pope Francis had counseled Murkowski and her colleagues to safeguard "our common home" and "avert the most serious effects of the environmental deterioration caused by human activity." The pontiff also told lawmakers: "I am convinced that we can make a difference and I have no doubt that the United States -- and this Congress -- have an important role to play."

"After the address ... the pontiff stood on the Capitol balcony, Evita-style, " ... and he expressed a belief in our collective power by asking all to pray for him. Sensitive to the existence of America's growing numbers of non-believers, he suggested that people "send good wishes" his way, if praying wasn't their thing. Maybe the pontiff should have asked us to pray for something else: that Congress might actually listen to a word he'd just said!

The extreme agenda of conservatives has been promoted all too effectively by the increasingly notorious organization American Legislative Exchange Council (ALEC). This is a lobbying group that successfully manages to serve as a front group for creating legislation at the state level to advance conservative agenda actions. ALEC is a "bill mill" organization that helps conservative legislators in various states to enact corporate wish lists that will help maximize private profits. Big corporations fund almost all the operations of ALEC, and they are paying for a seat on task forces where corporate lobbyists and representatives of special interest groups vote with elected officials to approve "model bills". These bills reach into many arenas of American life and often directly benefit

big corporations at the expense of the people. Thus ALEC helps huge global corporations and serves conservative politicians in rewriting state laws behind closed doors, often undermining the rights and well-being of the vast majority of Americans. ALEC proposes about 1,000 new laws each year, and succeeds in imposing their ideological plans about 20% of the time.

Extensive bad publicity in recent years has been engendered by some of the extreme positions ALEC promotes, and as an appropriate consequence, more than 100 corporations have cut their ties to ALEC. Even corporate America sees that ideology cannot trump reality, and evidence inevitably wins out no matter how obstinate the denials or urgings of contrary propaganda. Trump take note!

The main agenda items promoted by ALEC reads like a damning summary of anti-progressive, anti-social, anti-environmental and anti-populist initiatives. The primary efforts promoted by ALEC include:

- (1) Reducing regulations and taxes on corporate entities.
- (2) Weakening labor unions and collective bargaining rights of working people.
- (3) Loosening environmental regulations and undermining environmental protections.
- (4) Opposing climate action and eviscerating clean energy efforts, even taking steps to penalize homeowners who install solar panels.
- (5) Branding civil disobedience activities by environmental groups and animal rights activists as terrorism, and prohibiting filming at livestock farms to prevent people from seeing their real gruesome nature.
- (6) Promoting gun ownership and gun rights and aggressive Stand Your Ground gun laws.
- (7) Protecting corporations against lawsuits.
- (8) Privatizing whatever they can, including public education, to increase opportunities for private profit.
- (9) Privatizing prisons and keeping them filled by promoting harsh laws like Three Strikes laws.
- (10) Combating illegal immigration, and disparaging immigrants.
- (11) Tightening voter identification laws to make them more restrictive so as to favor Republican politicians.
- (12) Opposing Obamacare and efforts to create universal healthcare in the U.S.
- (13) "Training" politicians with messaging advice on how to manipulate public opinion and get pro-corporate legislation enacted.

A Salute to the Earth Charter

The Earth Charter is an international declaration of fundamental values and principles considered useful by its supporters for building a just, sustainable and peaceful global society during this century. The Earth Charter had its roots in the values of the Transformational Movement. Jan Roberts, president of the *Institute for Ethics and Meaning*, describes this Movement as a paradigm shift from individualism, self-interest and separateness to unity, wholeness and community.

The thought-provoking Preamble to the Earth Charter states: "We stand at a critical moment in Earth's history, a time when humanity must choose its future. As the world becomes increasingly interdependent and fragile, the future at once holds great peril and great promise. To move forward we must recognize that in the midst of a magnificent diversity of cultures and life forms we are one human family and one Earth community with a common destiny. We must join together to bring forth a sustainable global society founded on respect for nature, universal human rights, economic justice, and a culture of peace. Towards this end, it is imperative that we, the peoples of Earth, declare our responsibility to one another, to the greater community of life, and to future generations.

The Earth Charter consists of 16 principles that fall into these four main categories:

- I. RESPECT AND CARE FOR THE COMMUNITY OF LIFE
- II. ECOLOGICAL INTEGRITY
- III. SOCIAL AND ECONOMIC JUSTICE
- IV. DEMOCRACY, NONVIOLENCE AND PEACE

The Earth Charter concludes with *The Way Forward*: "As never before in history, common destiny beckons us to

seek a new beginning. Such renewal is the promise of these Earth Charter principles. To fulfill this promise, we must commit ourselves to adopt and promote the values and objectives of the Charter."

"This requires a change of mind and heart, and a new sense of global interdependence and universal responsibility. We must imaginatively develop and apply the vision of a sustainable way of life locally, nationally, regionally, and globally. Our cultural diversity is a precious heritage and different cultures will find their own distinctive ways to realize the vision. We must deepen and expand the global dialogue that generated the Earth Charter, for we have much to learn from the collaborative search for truth and wisdom."

"Life often involves tensions between important values. This can mean difficult choices. However, we must find ways to harmonize diversity with unity, the exercise of freedom with the common good, short-term objectives with long-term goals. Every individual, family, organization, and community has a vital role to play. The arts, sciences, religions, educational institutions, media, businesses, nongovernmental organizations, and governments are all called to offer creative leadership. The partnership of government, civil society, and business is essential for effective governance."

"In order to build a sustainable global community, the nations of the world must renew their commitment to the United Nations, fulfill their obligations under existing international agreements, and support the implementation of Earth Charter principles with an international legally binding instrument on environment and development."

"Let ours be a time remembered for the awakening of a new reverence for life, the firm resolve to achieve sustainability, the quickening of the struggle for justice and peace, and the joyful celebration of life."

All nations in the world should renew their support for the three environmental treaties enunciated at the first Earth Summit in Rio de Janeiro in 1992: (1) the United Nations Framework on Climate Change; (2) the vital Convention on Biological Diversity; and (3) the United Nations Convention to Combat Desertification. Also, in addition, the Plan of Action that was formulated at the Cairo International Conference on Population and Development in 1994 should be given more hearty support, along with the Millennium Development Goals set forth in 2000. These are the undergirdings of global cooperation toward a better future.

"A great number of people think that they are thinking when they are merely rearranging their prejudices."

--- William James

Dick Cheney once said, "Conservation may be a sign of personal virtue, but it is not a sufficient basis for a sound, comprehensive energy policy." I personally don't actually believe there is a Nemesis goddess of divine retribution against those who are filled with hubris, but basic principles of cause and effect are definitely operative in the Universe, and it is exceedingly risky for humankind to ignorantly and injudiciously ignore the revelations of knowledge and foresight. The motives of those who deny both common sense and the overwhelming consensus of experts in scientific understandings is transparently to pander to fossil fuel industries and other vested interest groups in order to gain benefits for themselves, generally to the detriment of the majority of Americans and all in future generations. This stance is myopic and rudely obtuse, and disregards the longer-term greater good of humanity as a whole.

The utility of our current economic system is tragically flawed from the standpoint of people in the future because it relies on persuading consumers today to, in effect, use up resources at the fastest possible rate - thereby making their ecological footprint as heavy as possible - in order to satisfy the short-term profit goals of corporate CEOs, and top managers and investors. Our economic and political systems encourage moneyed interests to stimulate consumerism and excessively exploit limited resources, and to mercilessly squeeze workers by regressively giving more and more benefits to the few, and to allow vested interests to gain by externalizing a variety of costs, including adverse impacts of climate change, onto people in the future. Sensible and responsible reforms are required!

Social conservatives demand purity, and yet they passionately and persistently parrot prescriptions of advocates for laissez-faire capitalism and corporate CEOs, economic fundamentalists, corporate think tank operatives and other mouthpieces for wealthy people and industry groups. The very narrow 5 to 4 majority of "conservative"

Justices on the Supreme Court in 2010 nodded their heads in solemn agreement, as if this is exactly what the Founders, and lawmakers ever since, have intended.

Among these Republicans, there is a large subset that denies that there could be any problem with humankind's activities that are causing tens of billions of tons of carbon dioxide to be spewed into the atmosphere every year. "LESS TAX on rich people and giant corporations", the chorus cries. "Subscribe to these ideas." Meanwhile, the concentration of carbon dioxide in the atmosphere inexorably increases, causing historic disruptions in weather patterns worldwide. If we mindlessly insist on sticking with the status quo of fossil-fuel-powered civilizations, the least we could do is to compromise by investing in protections of more of the world's forests, which take carbon dioxide out of the atmosphere through the process of photosynthesis. Instead of doing this, humanity is chopping these forests down at alarming rates, especially in the tropics.

Read-my-lips-Republicans, stubbornly sticking to their Santa Claus tax-cutting tactics, have steered the United States toward national insolvency to achieve the narrow purpose of giving historically low tax rates to people on the highest levels of their incomes, dividends, capital gains and inheritances. Our hyper-partisan political system continues to be paralyzed by the inordinate and unjustifiable power of this extremely small minority of wealthy people. The reckless refusal by conservatives to compromise on assessing higher taxes on the fortunate few, who have never had it better, is irresponsible from fiscal, social, and environmental standpoints.

"Who woulda thought that the crazies would be allowed to run the Republican Party?"

--- Comment overheard at public forum

The great American experiment in fair representative governance is being undermined by extreme partisan gerrymandering, and torn asunder by ideological intransigence and Republican obstruction of a modicum of progressive and egalitarian initiatives. This is a form of cold-hearted pandering to the ideology-driven retrogressive agenda of billionaire industrialists like Charles and David Koch.

I urge my fellow Americans to reprimand and penalize Republicans for stubborn adherence to ideology instead of fair-mindedness, and to send them back to the drawing board to create a new national agenda that is more forward thinking, inclusive, broad-minded, fair, honorable and ethical. I urge voters in particular to reject any Republican candidate in all future elections if they oppose fair solutions to the epic challenges like climate change that we face in the world today. Their dishonestly pigheaded opposition to Planned Parenthood services for poor women, and to reforms of our immigration system that are truly comprehensive, are especially retrogressive. Noam Chomsky succinctly put it this way:

"There is something new in the 2016 election, but it is not the appearance of candidates who frighten the old establishment. That has been happening regularly. It traces back to the shift of both parties to the right during the neoliberal years, the Republicans so far to the right that they are unable to get votes with their actual policies: to wit, dedication to the welfare of the very rich and the corporate sector. The Republican leadership has accordingly been compelled to mobilize a popular base on issues that are peripheral to their core concerns: the Second Coming, "open carry" in schools, liberals as evil, Obama as a Muslim, lashing out at the weak and victimized, and the rest of the familiar fare. The base that they've put together has regularly produced candidates unacceptable to the establishment: Michele Bachmann, Herman Cain, Rick Santorum, Mike Huckabee But the establishment has always been able to beat them down in the usual ways and get their own man (Mitt Romney). What is different this time is that the base is out of control, and the establishment is almost going berserk."

Mark Sumner, writing in Daily Kos, predicted a coming wipeout of the Republican Party. "For decades, Republicans have been thriving on a theme of Me-firstism and an insistence that it's the sworn duty of every American to fear those who have less than them," he wrote. "Republicans unleashed the tide of unreasoning fear and distrust, then they climbed up onto their boards and began to surf ... Only, that wasn't so much a wave. It was more a tsunami."

And now, Sumner added, Republicans are so unhinged that in the 2016 presidential contest they abandoned their own political pros in favor of a poorly qualified candidate who never held public office. Unfortunately, they sided with a rude demagogue who cheated and lied and collaborated with nefarious operatives to get elected, and the world is now suffering the consequences. Change must come!

The American people see that their Congressional Representatives are bitterly divided over hot button social issues and economic and political ideologies. We see a fierce battle for power and ascendancy in our political system. One political party stirs up people's anger at bureaucratic government and fears of "socialism" and secular modernity and liberal ideas and economic and social inequalities, while the other party agitates their constituents by stimulating people's dislike of corporate abuses of power and right-wing social engineering. The sound and fury of these conflicts distracts people from a clear-eyed awareness that the main obstacle to creating fairer, healthier and saner societies for all is found in a subtly dark and poorly understood place. Illumination is obviously required!

This main obstacle is a new form of tyranny that afflicts us today: our national policy-making is monopolized by the wealthiest people. Our political representatives pander almost exclusively to these favored people, so they help give rich people an outsized influence to advance a narrowly-focused agenda that tramples the public good. Even back in the days of the Greek historian Plutarch, almost 2,000 years ago, this fact was clear; he observed that such a state of affairs is dangerous for a society, because "An imbalance between rich and poor is the oldest and most fatal ailment of all republics." Our democratic republic is a great experiment in fair-minded governance, and we certainly should not let it be destroyed by too extreme an imbalance between the richest 1% of Americans and everyone else. Trends are not promising in this regard, and intelligent action is required.

The Great Political Conundrum

Conservatives know that united we stand and divided we fall. Taking advantage of this understanding, they are the primary energy behind efforts to divide people in order to gain power and control over them. The Supreme Court, narrowly dominated by conservatives, ruled in the *Citizen's United* case that Big Money is free speech, so divisive advertising and negative attack ads are proliferating like a toxic algal bloom. This observation was corroborated by the outcome of the Congressional race in a special election in Florida in March 2014. There, outside groups supporting David Jolly, the Tea Party candidate and a former lobbyist, outspent the Democratic candidate, and Jolly consequently won the contest. Jolly's main plank was to oppose reform of the pathetically costly healthcare system in the U.S., and he also supported head-in-the-sands political conservative stances that deny climate change, oppose immigration reform, and champion the usual atavistic economic ideologies promoted by billionaires like the Koch brothers and political schemers like Karl Rove.

David Jolly's success was secured by heavy spending from outside political groups that are corrupting our politics. This was the most expensive Congressional race in history until that date and this spending resulted in a very ugly spate of negative and often dishonest attack ads that are making Americans hate their money-corrupted political system. We will not get fair-minded policies if we continue to let Big Money subvert our political system and upset our society. Ironically, after David Jolly served in Congress from 2014 through 2017, he subsequently became a prominent outspoken critic of the Trump administration, and he and his wife renounced the Republican Party in September 2018.

We are at serious risk of losing the neutrality of our judicial system because of "the increasingly brazen and ideological pro-corporate tilt of the Supreme Court". In a study published in the *Minnesota Law Review* in 2013, some 2,000 decisions made by 36 Justices who served on the Supreme Court from 1946 to 2011 were carefully reviewed. The study found that all five of the conservative justices sitting on the Supreme Court in 2011 were in the top ten most pro-corporate justices in the 65 years evaluated -- and Justices Samuel Alito and John Roberts are numbers one and two. And after Donald Trump appointed Neil Gorsuch, the newest and most illegitimate Supreme Court Justice, Gorsuch was assessed to be even further to the right.

Since Supreme Court Justices are appointed for life, it is vital that more fair-minded judges are appointed to vacancies on the Supreme Court. An overriding criterion should be that possible new Justices promise to uphold the power of the people rather than deciding all cases according to special interests of powerful corporations.

"I believe the huge sums of unlimited and often secret money pouring into our politics is a fundamental threat to our democracy. And I really mean that. I think it's a fundamental threat. Because the middle class will never have a fighting chance in this country as long as just several hundred families, the wealthiest families, control the process. It's just that simple."

-- Vice President Joe Biden, on October 21, 2015

A Square Deal, A New Deal, and A Bad Deal

Decades after Theodore Roosevelt advocated a fair *Square Deal*, President Franklin D. Roosevelt implemented a *New Deal* that established a social security safety net for people in the wake of capitalism's disastrous speculative excesses of the 1920s and the subsequent severe Depression. In contrast, Ronald Reagan offered the American people what was effectively a *Bad Deal*, wherein he radically stimulated inequalities by enacting changes in taxation that gave rich people significantly more after-tax income. He packaged this scam in shining rhetoric and freedom-ringing ideological narratives, but history is proving that his tax-cutting initiatives were sold with deceptive and erroneous rationalizations, and are leading to unsustainable debt and damaging the prospects of the average person in our country. Then in recent years, the Tea Party offered Americans *No Deal*, trying to shut the government down and threatening to default on our national debt obligations and refusing to compromise on almost every issue. With the advent of the "Freedom Caucus" in the House of Representatives and then the illegitimate election of Donald Trump, deceit in our "post-truth" political world tells the people they are going to be given a *Great Deal*, but the devil is in the details, and the reality is that what is being imposed by Trump on healthcare and the environment is a *Rotten Deal*.

Mark Summer, a "Lefty Blogger" for Daily Kos, has contended that beginning in "the time of the Gingrich," Republicans "realized they could simultaneously weaken the government, complain about the failure of programs they had just sabotaged, and create a perpetual-motion machine of government destruction ... Republicans [would] take on anything, no matter how insane, so long as it kept dragging the conversation ever rightward."

This point of view sounds accurate to me, even though huge amounts of money will be given to support Republican politicians due to the abject failure of Congress to enact fair-minded campaign finance reform -- and the wrongly-decided Supreme Court ruling that gives Big Money domineering and blatantly corrupt influence on our national politics.

A Salute to Earth Day

The first Earth Day was commemorated on April 22, 1970, and it has expanded over the years to be honored as a day of environmental awareness, protection and action in more than 190 countries. This idea was conceived by Senator Gaylord Nelson of Wisconsin, "a leading figure in the fight against environmental degradation and social injustice in the twentieth century." Nelson had grown up steeped in Wisconsin's progressive heritage and New Deal liberalism, and was confident in both the political power of ordinary citizens and the government's ability to promote the public good. "Though the 1950s brought prosperity to some Americans, Nelson's attention was with those in the city and the countryside who were disadvantaged. He never overlooked the social and ecological costs of technological innovation and industrial expansion."

An estimated 20 million people rallied on the first Earth Day to confront the ecological troubles in their cities, states and nation, and around the planet -- and to demand action from their elected officials. This watershed moment had a catalyzing effect on environmental politics, and led to what was once called the "Environmental Decade" of far-reaching legislative reforms. Many important laws designed to protect the environment were passed, including the Clean Water Act, the Clean Air Act, the National Wild and Scenic Rivers Act, the Environmental Education Act, and the National Trails System Act that authorized the protection of a system of beautiful National Scenic Trails. Today, these respectable laws are under assault by many "conservative" politicians who are doing the bidding of their Big Money supporters, radically contrary to the common good.

"Congress allowed one of America's most effective conservation laws to lapse on September 30, 2015 because a few extreme voices were allowed to make decisions about parks, trails and open spaces across the entire country," according to the Wilderness Society. The same politicians whose talk of shutdowns has become commonplace have held the federal budget process hostage by attaching many extraneous riders designed to weaken our bedrock environmental laws and protections. "Enough is enough!" After these words were initially written, the Land and Water Conservation Fund was temporarily extended for 3 years, after an episode of political brinksmanship, in the Consolidated Appropriations Act of 2016. It is now scheduled to expire again on September 30, 2018. All fair-minded people should demand that Congress permanently fund this legislation.

The Land and Water Conservation Fund was laudably established fifty years ago in 1964. It is America's most successful conservation and recreation program. It collects more than \$2 million a day in royalties from offshore drilling to reinvest in our parks, playgrounds and open spaces, helping keep our nation healthy and livable. The Fund was designed to assure that outdoor recreation lands would be secured, on a pay-as-you-go basis, for future generations. Investments in the Fund support public land conservation and ensure access to the outdoors for all Americans, in rural communities and cities alike. It has created outdoor recreation opportunities in every state and 98 percent of counties across the country, opening up key areas for hunting, fishing and other recreational access; supporting working forests and ranches; acquiring in-holdings and protecting critical lands in national parks, national wildlife refuges, national forests, Civil War battlefields, and other federal areas; and making additions and improvements to state and local parks and recreation facilities.

Chirping cicadas conspired with a preternaturally early morning light one day last week to upset my circadian rhythms, and in this wakeful interregnum, an epiphany of sorts came to me. There are many symptoms of our world being in ecological overshoot. We are drawing on the world's resources faster than they can regenerate or be restored, and we are releasing wastes and pollutants faster than the Earth can absorb them or render them harmless. This state of affairs is leading us toward global environmental and economic collapse -- but there may still be time to address these problems and soften their impact.

In 1987, the World Commission on Environment and Development put the idea of sustainability into these words: "A sustainable society is one that 'meets the needs of the present without compromising the ability of future generations to meet their own needs.'" Such a society, with a sustainable ecological footprint, would be almost unimaginably different from the one in which most people now live."

"To overshoot means to go too far, to grow so large so quickly that limits are exceeded. When an overshoot occurs, it induces stresses that begin to slow and stop growth. The three causes of overshoot are always the same, at any scale from personal to planetary. First, there is growth, acceleration, rapid change. Second, there is some form of limit or barrier, beyond which the moving system may not safely go. Third, there is a delay or mistake in the perceptions and the responses that try to keep the system within its limits. The delays can arise from inattention, faulty data, a false theory about how the system responds, deliberate efforts to mislead, or from momentum that prevents the system from being stopped quickly."

The book *The Limits to Growth* had been commissioned in 1972 by the Club of Rome, an international group of businessmen, statesmen and scientists, and it was compiled by a team of experts from the United States and several foreign countries. Using system dynamics theory and a computer model called "World3," the book presented and analyzed 12 scenarios that showed different possible patterns and environmental outcomes of world development over two centuries from 1900 to 2100.

The computer scenarios showed how population growth and natural resource use interacted to impose limits to industrial growth. This was a novel and controversial idea at the time. In 1972, however, the world's population and economy were still comfortably within the planet's carrying capacity. The team found that there was still room to grow safely while we evaluate longer-term options.

By 1992, this was no longer true. On the 20th anniversary of the publication of *Limits to Growth*, the team updated it in a book titled *Beyond the Limits*. There was already compelling evidence in the 1990s that humanity was moving deeper into unsustainable territory. *Beyond the Limits* argued that in many areas we had "overshot" our limits, or expanded our demands on the planet's resources and "carbon sinks" beyond what could be sustained over time. The main challenge identified in *Beyond the Limits* was how to move the world back into sustainable territory.

On the 30th anniversary of *Limits to Growth* in 2003, *The 30-Year Update*, a comprehensive update was produced to the original book, and the authors concluded that humanity is dangerously far along in a state of overshoot. While some progress had been achieved in the intervening years, including new technologies, new institutions and a new awareness of environmental problems, the authors were far more pessimistic than they were in 1972. Humanity has squandered the opportunity to correct our current course, they concluded, and much must change in order to avoid the crucially serious consequences of overshoot in the 21st century.

The ideas behind *The Limits to Growth* have been demonized by people in vested interest groups, but Ugo Bardi, a Professor of Chemistry at the University of Firenze in Italy makes a compelling observation about the parallels between the understandings of deep ecologists and the story in Greek mythology of Cassandra: "Cassandra's story is very old: she was cursed that she would always tell the truth and never be believed. But it is also a very modern story and, perhaps, the quintessential Cassandras of our age are the group of scientists who prepared and published in 1972 the book titled *The Limits to Growth*. With its scenarios of civilization collapse, the book shocked the world perhaps more than Cassandra had shocked her fellow Trojan citizens when she had predicted the fall of their city to the Achaeans. Just as Cassandra was not believed, so it was for *The Limits to Growth*, which today is still widely seen as a thoroughly flawed study, wrong all along. This opinion is based only on lies and distortions but, apparently, Cassandra's curse is still alive and well in our times."

Paradoxes Related to Endless Economic Growth

Global environmental conditions will continue to deteriorate as increasing numbers of excessively greedy and increasingly needy people unsustainably over-exploit prime living areas and expand into ever more marginal habitats. A primary characteristic of prime living areas will increasingly be the availability of adequate supplies of fresh water, due to the fact that droughts will afflict more places and both surface water supplies and underground aquifers will continue to be insensibly depleted at rashly reckless rates.

The Coachella Valley area where Palm Springs is located has a total of 124 golf courses, so it has one of the largest concentrations of golf courses in the world. Palm Springs exists in an arid rain shadow of high mountains with no flowing streams, so it gets its water by pumping it out from hundreds of wells that draw heavily from a large underground aquifer. This wanton pumping has led to dramatic declines in water levels, posing serious long-term risks for the water supply. Perversely, the charges for pristine water from the underground aquifer used on golf courses is significantly less than the cost of water for residential uses. This doesn't make sense, because it encourages wasteful uses of water.

A joint U.S.-German satellite mission named GRACE, the Gravity Recovery and Climate Experiment, was launched in 2002. Maps are made from the precise data obtained from two satellites that fly separately in orbit just over 136 miles apart. The satellites monitor slight changes over time in Earth's gravitational pull, which occur when large quantities of water appear as snow or rain, or disappear due to drought or groundwater pumping.

Referring to the satellite data maps, hydrologist Jay Famiglietti, a professor at UC Irvine and director of the UC Center for Hydrologic Modeling, said "This is the global picture, and it's bad. All those red spots are hot spots of groundwater depletion that are happening all over the world: northwestern Australia, North China Plain, northwestern India, Bangladesh, Middle East, various regions around Africa." Much of California is covered in yellow or orange, showing that the state has been losing freshwater in the past decade. Groundwater pumping in California, as in most states in the USA, is not regulated by federal, state or local governments. Scientists say that, for most areas of the country, complete data on how much water has been used and how much remains underground simply and strangely do not exist.

"The future in California is just not bright, and we have to come to terms with that and begin actively managing our groundwater supplies for sustainability, for the future", Jay Famiglietti said. He and other researchers indicate that on top of heavy groundwater pumping for farms and growing populations in urban areas, water supplies in much of the West are becoming less reliable due to climate change. Prolonged drought has pushed reservoirs on the Colorado River to new lows, leaving them half empty and prompting water managers to respond with a plan to reduce the flow of water from Lake Powell to Lake Mead. Conservation measures in the California desert have also lagged behind those of some other regions in the Southwest.

"The board of directors, the city council, the leaders, need to overcome denial. Because nobody is going to ring the alarm bell and put a stop to the uncontrolled growth in the valley, unless they're very courageous. It's very difficult for people in government to sound the alarm bell, even though all the facts are there." We need to integrate groundwater management into our institutions and our thinking. More needs to be done to adopt "smart growth" policies, giving consideration to limits of water supplies. Some proposals for housing subdivisions should be turned down, and new real estate developments should be required to use filtered Colorado River water rather than

pumping from wells. Water agencies should adopt more stringent conservation programs with specific water-saving goals and annual progress reports. "What we know in Southern California, which we can see from satellites and from monitoring on the ground, is how the level of groundwater is dropping."

Water managers and hydrologists often liken an underground aquifer to a bank account in which there are deposits and withdrawals. Viewed this way, users of the Coachella Valley's aquifer have been overspending for many years. Depletion of groundwater has been a long-term, slow-moving crisis. Water levels have dropped by more than 100 feet since the 1950s in some areas of Palm Desert and Rancho Mirage that have many golf courses and subdivisions. For now, the valley has some of the heaviest water use in California, and it uses considerably more per person than other desert cities such as Phoenix and Las Vegas. The valley also has some of the lowest water rates charged in California. "We're using the water at a much quicker rate than it's being replenished, so the level of the water in the aquifer drops and ultimately we will hit bottom."

In a positive note, per capita water use has decreased in recent years as more people have replaced lawns with desert landscaping, and as some of the valley's water districts have adopted tiered rates that reward those who use less water. But such changes have come slowly, in part because for many years, "lots of people didn't want to look at water data because they didn't want to see what they would see." Ignorance is not bliss.

Groundwater sources are being pumped dry in many places around the planet. As average temperatures continue their long term increasing trends, due to more and more greenhouse gases being spewed into the atmosphere, warmer weather will cause more evaporation, so water shortages will become more severe. At the same time, human numbers will continue their inexorable march toward 10 billion in the next 40 years, and the tragedy of common profligacy of the over-exploitation of fresh water resources will become critical. The documentary film *Pumped Dry: The Global Crisis of Vanishing Groundwater* explores this daunting challenge and casts a bright light on this intractable issue.

As skirmishes are fought over dwindling supplies of fresh water for drinking, food production, industrial uses and wildlife needs in countless regions around the world, the focal priorities of many governments are being distorted, and conflicts are intensifying over power, money, family planning prerogatives, religious differences and terrorist strife. This corruption of our national priorities makes us all complicit in figuratively fiddling while Rome burns, and this obtuse ignoring of precautionary principles will prove to be fatefully shortsighted. Solutions to this overarching challenge exist, and every country should seek the will to put comprehensive plans into effect to prevent desperate circumstances from arising. The producers of *Pumped Dry* urge people to go to the film's website to find out more about this crucial issue. National planners should heed the ideas found there. We cannot afford to ignore this problem, for it will get worse, and poor planning will have dire consequences for billions of people during the lifetimes of all generations now alive and to be born.

Conclusion

We can clearly see that problems created by human impacts on global weather and rainfall patterns and sea levels are deep-seated. The challenge lies before us. What should we do?

A short list of suggested solutions: (1) Protect more forests in every country and plant more trees to absorb carbon dioxide from the atmosphere; (2) Invest in energy conservation, efficient usages of fossil fuels, and greener alternatives; (3) Invest in promoting plant-based diets and discouraging animal agriculture by requiring the internalizing of the many externalized costs of animal factory farms; (4) Strongly encourage accurate sex education, family planning programs, free availability of contraceptives, and greater economic security for the masses; (5) Increase marginal tax rates on the highest level of earnings to make them much more steeply graduated. It is noteworthy that this rate was between 70% and 92% every year from 1936 to 1980, before Ronald Reagan had it reduced to 28%, and this change has been a primary cause of the increase in the national debt from less than \$1 trillion in 1980 to almost \$27 trillion in August 2020. During this period, the net worth of the top 1% has increased by something like \$30 trillion, so in a sense we have foolishly borrowed \$26 trillion from people in the future to give the money to the super rich in the here and now. This is crazy!

One precondition for making progress on these issues appears to be to change our political system to reduce

political corruption and limit influence peddling. The Supreme Court's *Citizens United* ruling should be overturned and we should prevent rich people and vested interest groups from spending huge sums of money, in secret, to corrupt our national decision making.

We should honor the ideas and provisions articulated in *The Earth Charter*. The provocative sentence that concludes this declaration of common sense reads, "Let ours be a time remembered for the awakening of a new reverence for life, the firm resolve to achieve sustainability, the quickening of the struggle for justice and peace, and the joyful celebration of life."

Let's also awaken to truer values in life, and to a profound realization of the interconnectedness and impermanence of all beings. The main teaching of Buddhism can simply be summarized as "non-harming". Buddha spent years teaching people to live in harmony with the Earth, and not to kill living things or contaminate fresh water or despoil nature. Recognizing that the perilous effects of global warming will be most devastating for poor people who contribute least to the cause of these conditions, we need to restructure our societies, nurture compassion in our hearts, and strive with overarching energy, focus and commitment to prevent conditions that will lead to great suffering for our heirs in future generations.

Carpe diem! -- Seize the today! Memor Erit in Crastino Consciam. -- Be Responsibly Mindful of Tomorrow.

Truly, Dr. Tiffany B. Twain

Postscript One

Henry M. Paulson Jr. is the chairman of the Paulson Institute at the University of Chicago. He was Secretary of the Treasury from July 2006 to January 2009. He wrote an important article titled *The Coming Climate Crash: Lessons for Climate Change in the 2008 Recession*. Here are these valuable observations from 2014:

There is a time for weighing evidence and a time for acting. And if there's one thing I've learned throughout my work in finance, government and conservation, it is to act before problems become too big to manage. For too many years, we failed to rein in the excesses building up in the nation's financial markets. When the credit bubble burst in 2008, the damage was devastating. Millions suffered. Many still do.

We're making the same mistake today with climate change. We're staring down a climate bubble that poses enormous risks to both our environment *and* economy. The warning signs are clear and growing more urgent as the risks go unchecked.

This is a crisis we can't afford to ignore. I feel as if I'm watching as we fly in slow motion on a collision course toward a giant mountain. We can see the crash coming, and yet we're sitting on our hands rather than altering course. We need to act now, even though there is much disagreement, including from members of my own Republican Party, on how to address this issue while remaining economically competitive. They're right to consider the economic implications. But we must not lose sight of the profound economic risks of doing nothing.

The solution can be a fundamentally conservative one that will empower the marketplace to find the most efficient response. We can do this by putting a price on emissions of carbon dioxide -- a carbon tax. Few in the United States now pay to emit this potent greenhouse gas into the atmosphere we all share. Putting a price on emissions will create incentives to develop new, cleaner energy technologies.

It's true that the United States can't solve this problem alone. But we're not going to be able to persuade other big carbon polluters to take the urgent action that's needed if we're not doing everything we can do to slow our carbon emissions and mitigate our risks.

I was Secretary of the Treasury when the credit bubble burst, so I think it's fair to say that I know a little bit about risk, assessing outcomes and problem-solving. Looking back at the dark days of the financial crisis in 2008, it is easy to see the similarities between the financial crisis and the climate challenge we now face.

We are building up excesses (debt in 2008, greenhouse gas emissions that are trapping heat now). Our government policies are flawed (incentivizing us to borrow too much to finance homes then, and encouraging the overuse of carbon-based fuels now). Our experts (financial experts then, climate scientists now) try to understand what they

see and to model possible futures. And the outsize risks have the potential to be tremendously damaging (to a globalized economy then, and the global climate now).

Back then, we narrowly avoided an economic catastrophe at the last minute by rescuing a collapsing financial system through government action. But climate change is a more intractable problem. The carbon dioxide we're sending into the atmosphere remains there for centuries, heating up the planet.

That means the decisions we're making today — to continue along a path that's almost entirely carbon-dependent — are locking us in for long-term consequences that we will not be able to change but only adapt to, at enormous cost. To protect New York City from rising seas and storm surges is expected to cost at least \$20 billion initially, and eventually far more. And that's just one coastal city.

New York can reasonably predict those obvious risks. When I worry about risks, I worry about the biggest ones, particularly those that are difficult to predict — the ones I call small but deep holes. While odds are you will avoid them, if you do fall in one, it's a long way down and nearly impossible to claw your way out.

Scientists have identified a number of these holes -- potential thresholds that, once crossed, could cause sweeping, irreversible changes. They don't know exactly when we would reach them. But they know we should do everything we can to avoid them.

Already, observations are catching up with years of scientific models, and the trends are not in our favor. Fewer than 10 years ago, the best analysis projected that melting Arctic sea ice would mean nearly ice-free summers by the end of the 21st century. Now the ice is melting so rapidly that virtually ice-free Arctic summers could be here in the next decade or two. The lack of reflective ice will mean that more of the sun's heat will be absorbed by the oceans, accelerating warming of both the oceans and the atmosphere, and ultimately raising sea levels.

Even worse, in May 2014, two separate studies discovered that one of the biggest thresholds has already been reached. The West Antarctic ice sheet has begun to melt, a process that scientists estimate may take centuries but that could eventually raise sea levels by as much as 14 feet. Now that this process has begun, there is nothing we can do to undo the underlying dynamics, which scientists say are "baked in." And 10 years from now, will other thresholds be crossed that scientists are only now contemplating?

It is true that there is uncertainty about the timing and magnitude of these risks and many others. But those who claim the science is unsettled or action is too costly are simply trying to ignore the problem. We must see the bigger picture.

The nature of a crisis is its unpredictability. And as we all witnessed during the financial crisis, a chain reaction of cascading failures ensued from one intertwined part of the system to the next. It's easy to see a single part in motion. It's not so easy to calculate the resulting domino effect. That sort of contagion nearly took down the global financial system.

With that experience indelibly affecting my perspective, viewing climate change in terms of risk assessment and risk management makes clear to me that taking a cautiously conservative stance — that is, waiting for more information before acting — is actually taking a very radical risk. We'll never know enough to resolve all of the uncertainties. But we know enough to recognize that we must act now.

I'm a businessman, not a climatologist. But I've spent a considerable amount of time with climate scientists and economists who have devoted their careers to this issue. There is virtually no debate among them that the planet is warming and that the burning of fossil fuels is largely responsible.

Farseeing business leaders are already involved in this issue. It's time for more to weigh in. To add reliable financial data to the science, I've joined with the former mayor of New York City, Michael R. Bloomberg, and the retired hedge fund manager Tom Steyer on an economic analysis of the costs of inaction across key regions and economic sectors. Our goal for the Risky Business project — starting with a new study that will be released this week — is to influence business and investor decision making worldwide.

We need to craft national policy that uses market forces to provide incentives for the technological advances required to address climate change. As I've said, we can do this by placing a tax on carbon dioxide emissions. Many

respected economists, of all ideological persuasions, support this approach. We can debate the appropriate pricing and policy design and how to use the money generated. But a price on carbon would change the behavior of both individuals and businesses. At the same time, all fossil fuel subsidies should be phased out. Renewable energy can outcompete dirty fuels once pollution costs are accounted for.

Some members of my political party worry that pricing carbon is a "big government" intervention. In fact, it will reduce the role of government, which, on our present course, increasingly will be called on to help communities and regions affected by climate-related disasters like floods, drought-related crop failures and extreme weather like tornadoes, hurricanes and other violent storms. We'll all be paying those costs. Not once, but many times over. This is already happening, with taxpayer dollars rebuilding homes damaged by Hurricane Sandy and the deadly Oklahoma tornadoes. This is a proper role of government. But our failure to act on the underlying problem is deeply misguided, financially and logically.

In a future with more severe storms, deeper droughts, longer fire seasons and rising seas that imperil coastal cities, public funding to pay for adaptations and disaster relief will add significantly to our fiscal deficit and threaten our long-term economic security. So it is perverse that those who want limited government and rail against bailouts would put the economy at risk by ignoring climate change. This is short-termism. There is a tendency, particularly in government and politics, to avoid focusing on difficult problems until they balloon into crisis. We would be fools to wait for that to happen to our climate.

When you run a company, you want to hand it off in better shape than you found it. In the same way, just as we shouldn't leave our children or grandchildren with mountains of national debt and unsustainable entitlement programs, we shouldn't leave them with the economic and environmental costs of climate change. Republicans must not shrink from this issue. Risk management is a conservative principle, as is preserving our natural environment for future generations. We are, after all, the party of Teddy Roosevelt.

THIS problem can't be solved without strong leadership from the developing world. The key is cooperation between the United States and China — the two biggest economies, the two biggest emitters of carbon dioxide and the two biggest consumers of energy.

When it comes to developing new technologies, no country can innovate like America. And no country can test new technologies and roll them out at scale quicker than China. The two nations must come together on climate. The Paulson Institute at the University of Chicago, a "think-and-do tank" I founded to help strengthen the economic and environmental relationship between these two countries, is focused on bridging this gap. We already have a head start on the technologies we need. The costs of the policies necessary to make the transition to an economy powered by clean energy are real, but modest relative to the risks.

A tax on carbon emissions will unleash a wave of innovation to develop technologies, lower the costs of clean energy and create jobs as we and other nations develop new energy products and infrastructure. This would strengthen national security by reducing the world's dependence on governments like Russia and Iran.

Climate change is the challenge of our time. Each of us must recognize that the risks are personal. We've seen and felt the costs of underestimating the financial bubble. Let's not ignore the climate bubble.

--- Henry Paulson

Postscript Two: Text of The Gibson Climate Change Resolution

Since the risks of climate change are far, far too great to get bogged down in partisan politics, it is heartening to see that 24 Republicans in the House of Representatives have signed on to the Republican Climate Resolution that recognizes the impact of climate change and calls for bold action to reduce future risk. Let's demand that all the other Republicans (and Democrats!) change course, or let's throw them out of office and elect more responsible and fair-minded representatives to replace them.

Here is the RESOLUTION TEXT H.R. 95, expressing the intention of the House of Representatives to commit to conservative environmental stewardship:

Whereas it is a conservative principle to protect, conserve, and be good stewards of our environment, responsibly plan for all market factors, and base our policy decisions in science and quantifiable facts on the

ground;

Whereas prudent, fact-based stewardship of our economy and our environment is a critical responsibility for all Americans in order to ensure that we preserve our great Nation for future generations;

Whereas there has been a marked increase in extreme weather events across the United States, including more frequent heat waves, extreme precipitation, wildfires, and water scarcity;

Whereas this has had noticeable, negative impacts that are expected to worsen in every region of the United States and its territories, including, among other significant weather events and environmental disruptions, longer and hotter heat waves, more severe storms, worsening flood and drought cycles, growing invasive species and insect problems, threatened native plant and wildlife populations, rising sea levels, and, when combined with a lack of proper forest management, increased wildfire risk;

Whereas increased pollutants and other factors contribute to local, regional, and national environmental and human health impacts, including increased mercury in the fish we eat, elevated asthma attacks in our children, acid rain, smog, degraded water quality, urban heat islands, and rapid storm water runoff that leads to costly infra-structure projects;

Whereas the 2014 Quadrennial Defense Review states that the effects of a changing climate are "threat multipliers that will aggravate stressors abroad such as poverty, environmental degradation, political instability, and social tensions";

Whereas, if left unaddressed, the consequences of a changing climate have the potential to adversely impact all Americans, hitting vulnerable populations hardest, harming productivity in key economic sectors such as construction, agriculture and tourism, saddling future generations with costly economic burdens and environmental adversities, and imposing additional costs on State and Federal budgets that will further add to the long-term fiscal challenges that we face as a Nation;

Whereas any efforts to mitigate the risks of, prepare for, or otherwise address our changing climate and its effects should not constrain the United States economy, especially in regards to global competitiveness; and Whereas there is increasing recognition that we can and must take meaningful and responsible action now to address this issue: Now, therefore, be it Resolved, That the House of Representatives commits to working constructively, using our tradition of American ingenuity, innovation, and exceptionalism, to create and support economically viable, and broadly supported private and public solutions to study and address the causes and effects of measured changes to our global and regional climates, including mitigation efforts and efforts to balance human activities that have been found to have an impact.

These warning signs should be of concern to everyone, says Reich, regardless of political party. "In fact, historically, conservatives have been especially vigilant against potential threats to our constitutional rights."

"All Americans must join together to protect American democracy against tyranny. Consider yourself warned."

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