



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 character traits that were consistent with the greater good of the whole group. Natural selection, operating over countless generations, pruningly favors the best survival qualities in the long run. Human beings lived in clan groups through most of their 150,000-year-long hunting and gathering stage, and relied on an adequate degree of cooperation and social cohesion within their groups to survive and flourish. Over the passing millennia, especially since the beginning of the Agricultural Revolution and then throughout the Industrial Revolution, human social groups have become ever larger, growing from small clans to tribes to agrarian villages to towns and eventually to cities and feudal kingdoms and then nations and alliances of countries. Today, necessity is growing for fostering broader cooperation to achieve bigger goals that are vital to life on Earth, and for us to engage in global collaboration to ensure a more propitious destiny.

Social cohesion and civilizing influences have been crucial 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 things facilitate faster adaptation than is possible with the slow multi-generational process of genetic adaptation. Organizational and technological adaptation have been extraordinary, allowing us to feed propagating billions of people and to create critical institutions of civil society and more fair-minded laws and providential infrastructure for clean drinking water, 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 cohesion 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 cohesion are many, including national policies that are creating neo-Gilded Age increases in extremes of inequality. Also, indulgences in greedily materialistic status-seeking impulses are having the effect of torpedoing fair-minded Golden Rule sensibilities, and people seeking windfall wealth and special advantages have fomented dangerously excessive political partisanship, and have had the effect of stoking divisive feelings and hostilities between people. Frustration, anger and resentment are arising in reaction to economic injustices, inequities in taxation, rigged international trade policies, inadequately fair labor policies, hot button social issues, harmful inequalities and the ethical requirements associated with civilizing influences. As a result, intolerance is escalating and an international surge of anti-migrant sentiments, self-righteous religious fundamentalism and terrorist reaction is making it more difficult to achieve peaceable coexistence.

One thing, however, is perfectly clear. We need 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 more and more urgent, and yet deep fractures exist across America and around the world, and they are being exacerbated by polarizing issues and the daunting nature of growing challenges. One of the most contentious of all is the question of the risks and possible responses to the destabilizing impacts of greenhouse gas emissions on the global climate. This is an issue that is surely one of the most consequential ever, for humanity as a whole.

The vast majority of scientific experts who study the physics of climate processes 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. Low-lying islands and coastal areas are beginning to be flooded by rising seas. Harsh drought conditions and 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 of scientists that a build-up of greenhouse gases in the atmosphere will cause increasingly extreme climate conditions. Simultaneously, doubts are markedly diminishing about whether climate change is being caused by human activities, since 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 since 1958 at an observatory near the 13,678-foot summit of the remote Mauna Loa volcano on the Big Island of Hawaii.

Necessity has often been the mother of invention throughout recorded history. Today, ecological disruptions that are being caused by changing weather patterns, together with correlated rising sea levels and ocean acidification, 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, the 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 principal purpose is to make an accurate assessment of the best ideas for providentially addressing the challenges that are arising as we alter the global climate and undermine the common good, create inequities, perpetuate injustices, deplete natural resources, overuse and contaminate fresh water sources, pollute the commons, contribute to the decimation of wildlife, and harm natural ecosystems.

Pope Francis made a religious case for tackling climate change in late 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, and he warned that global climate change is likely to have catastrophic impacts. He declared, "Safeguard Creation. 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 "good", and charged humanity with its care. The Pope also made reference to his namesake, Saint Francis of Assisi, who was a lover of animals, and he tied the ongoing environmental crisis to economic concerns and the exploitation of the planet by a wealthy minority. And he emphasized the social injustices these trends create to the detriment of the poor and the downtrodden.

"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 likening it to "self-idolatry".

Soon after his Vatican address, Pope Francis issued his important 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 seriously address climate change. Since a sense of humor is born of good perspective, it bears a near kinship to philosophy, "each being the soul of the other", so it is appropriate 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 environmental protection and climate action is cogently encapsulated. A lecturer at a global Climate Summit meeting was showing a big flipchart that itemized 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?!

One reason that the Pope has been calling for climate action as a moral imperative is due to the fact that the perilous effects of global warming will be most devastating for poor people and folks in vulnerable developing countries, who happen to be contributing the least to factors driving climate change. Smarter and fairer policies are assuredly needed to achieve truer environmental and social justice. All developed countries should make 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.

Incisive Insights

It is foolishly shortsighted to encourage rapid exploitation and depletion of mineral and fossil fuel resources. Many Americans accept such misguided predations, for a few simple reasons. Deep-pocketed special interests contribute large sums of money to spread propaganda that tells us that this is the best path forward to create jobs, jobs, jobs. Huge profits are being made through this gambit, and an ungodly proportion of the profits are going to the wealthiest 1%, who provide lavish funding to propagate this shrewd spin. Rich people are thereby demonstrating incredible hubris in demanding fewer restrictions on their extractive activities -- and more and more tax breaks for themselves.

It is starkly greedy, 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, destabilizing and harsh. It will be as if Mother Nature is morphing into an angry, implacably judgmental, deeply disappointed, punitive and very scarily malevolent God.

The renowned writer Upton Sinclair famously said more than 80 years ago that it is difficult to get people to understand something when their wages depend on not understanding it. This helps explain why Republicans in Texas and Louisiana and other such places, which have numerous highly polluted fossil fuel and chemical industry sites, are able to sell their corporate-friendly deregulatory propaganda and wealth-pandering regressive taxation schemes to the masses.

Imagine if, instead of capitulating to vested interests to let them externalize costs and monopolize the profits made through the extraction of fossil fuels, *We the People* were to demand and get a fairer sharing of the profits made through resource exploitation and depletion activities. One 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-of-days. Perhaps they are thinking of all the terrifying hurricanes, wild weather, epic floods, severe wildfires, earthquakes, global turmoil, apostasy, liberalism, "Beast Government", drug abuse and the like. Many of these folks believe that these signs reveal that a "Rapture" is going to take place soon in which there will be a Second Coming of Jesus Christ 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 deserved terrible fate for their wicked disbelief, 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. This curious Index contains 45 categories that supposedly measure how close End Times are to 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 externalizing costs onto society, deny scientific certitudes, 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 terribly and unnecessarily for these expedient and foolhardy schemes.

The brilliantly acerbic social critic and French philosopher Voltaire used wit-infused invective to ridicule and condemn irrational superstitious thought and preposterous beliefs, religious fanaticism, prejudiced intolerance and abuses of power by dogmatic church authorities and corrupt institutions, and he vituperatively criticized the

dangers of willful ignorance and denial. He saw the horrible potential pitfalls of the mutual reinforcement of established religions and oppressive government. And today we are seeing how master manipulators 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 short-term profits for the Few at an unbelievably dire cost to the Many, today and in 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, and that this ominous development should provoke us into taking action to mitigate the threat this poses 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 things are unfolding. Unlike the Rapture Index, these 45 parameters are not based on superstition, preposterous biases and bizarre supposed correlations, but rather on the fundamental underpinnings of a healthy existence.

Philosophic Understandings

Jared Diamond is a Pulitzer Prize-winning author and professor who wrote the compelling book *Collapse, How Societies Choose to Fail or Succeed*. In this thought-provoking compendium of big picture perspectives, Diamond reveals findings made from his study of many civilizations throughout the long course of 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 observes that we should make bold plans "at a time when problems have become perceptible but before they have reached crisis proportions." Diamond further indicates that we must be willing to reconsider core values that once served society well, when those values are becoming outmoded and detrimental due to deteriorating environmental conditions or changing circumstances.

Robert F. Kennedy, Jr. once pointed that there is a 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 any limits are put on businesses, and 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 deficit financing that has driven an increase in the U.S. national debt from less than \$1 trillion in 1980 to more than \$21 trillion in June 2018.

"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 farsighted. "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 that represent 10 million individuals worldwide. This is an organization with great integrity.

"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."

--- *What We Know*, The American Association for the Advancement of Science

The Practical Reasons for Social Insurance Policies

People in the U.S. alone 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, storms or flooding, and they buy car insurance to cover damages due to accidents, personal injuries and liability. When it comes to our home planet, however, 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 caused by climate change.

We should 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 ominous leading indicators telling us that our heirs are going to face some increasingly desperate times, so precautionary principles and policies are strongly advised.

We need to champion 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 enormous fresh infusion of funds, which are destined otherwise for the excessively padded bank accounts of the superrich, intelligent investments in the long-term greater good should be made.

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!

In the marketplace of good ideas, perspectives consonant with the greater good are often drowned out by deceptive and dishonest skills for money-prepossessed people and corporate organizations that use hyper-

amplified megaphones to espouse ideas inimically contrary to the common good. The collateral disadvantage of allowing undue influence to misguidance and 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, excessively inegalitarian and shortsighted. Salient examples of such ideologies are the evidence-discredited trickle-down theory and brash undertakings to maximize profits by socializing costs. There are also the rash doctrines that undermine reasonable protections of the environment and brazen efforts to facilitate the spending of unlimited amounts of money to corrupt our politics and indoctrinate the public with false priorities, and 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. In *See Clearly, Book Twelve of the Earth Manifesto*, sensational details are revealed about these existentially important topics:

- The Con Goes On: A Triumphant Coup by Crooked Conniving Crony Capitalists
- The Top Ten Ways Our System Is Unfairly Rigged
- Thirteen Main Methods Used to Concentrate Wealth and Power
- The Fourteen Worst Ways that Powerful People Abuse Power
- Demagoguery and the Dangers of the Demise of Democracy

After Donald Trump declared he would withdraw the U.S. from the Paris Climate Agreement on June 1, 2017, a stark contrast was revealed between greater good goals and executive hubris in championing short-term profiteering. Trump's unilateral decision to abdicate responsibility for climate action sent ripples of deservedly harsh condemnation around the globe. I heartily encourage all Americans to reject 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, arrogant, foresight deficient, greed driven, callously unempathetic, wrongheaded, 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 social 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. Increasing inequalities, inequities and injustices are becoming dangerously exaggerated, and this makes it clear that we need a stronger social safety net as a good insurance policy to ensure a healthier and safer society. But wealthy people are abusing the influence of their money and power by manifesting an increasingly stubborn opposition to helping 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 then new state of Nevada in 1866. Though it turned out to be a serious 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 better social safety net insurance policies, and stop waging a war on the poor by shredding the safety net in order to slash taxes on the rich."

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

A surprising poll done by the Russell Sage Foundation finds that "elites" -- defined as people who are in the top 1% in income in the U.S. -- have perspectives and priorities that differ radically from the majority of people. Many of these elites want to cut spending on Medicare, Medicaid, Social Security and sensible protections of the environment. In distinct contrast, the opinion of 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, decision-making and lawmaking are powerfully skewed to conform to the desires of the

wealthy.

To prevent this corruption of our politics, it would be an excellent idea to ratify a Constitutional Amendment to prevent the undue influence of wealthy people and corporations by limiting Big Money in politics, as specifically proposed by Senator Tom Udall and the Move to Amend organization. Republican politicians tend to staunchly oppose such action and champion ever-riskier ever-increasing inequality in America and the world. This makes them appear to despise democracy, judging by this opposition and the widespread efforts made by Republicans to pander to the rich and hijack people's emotions in consequentially harmful and crudely manipulative ways, and to shrewdly prevent millions of people from voting and gerrymander congressional districts.

Above an op-ed piece 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 don't 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 more rich people 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 to 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 millions 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 end 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, their soil eroded, their 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 society, but they realized too late that they could not reverse the deterioration of their environment. They thus became casualties of their own privilege and obtuseness, 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 on Earth. We must honestly embrace a responsible stewardship and respect for the foundations of our well-being, and for the diversity and health of the ecosystems upon which we depend.

We could do better, far better, with the will to accomplish this goal. A peaceful revolution is called for. The privileged classes stand in our way. Shall we unite to fight this good fight, or meekly continue to let the tyranny of Big Money dominate our national policies? I know what I think. How about you?

The History of Environmental Protection

I repeat this riff from *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 establishing protections of 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 forests, 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 and bipartisan leadership helped enact all the bedrock environmental laws, including the Wilderness Act, the National Environmental Policy Act, the Clean Air Act, the Clean Water Act and the Endangered Species Act. The book *Getting to Green*, written by political independent Frederic Rich, explains that beginning in the 1980s, a "Great Estrangement" began, with conservatives beginning a hard tack to the right and the Green movement drifting 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 2018: Shockingly worse!

Frederic Rich provides a balanced assessment and makes a very good case in *Getting to Green* that bold and effective climate action is a crucial 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 ice sheets will melt if the increasing trend of carbon and methane emissions continues unchecked. This will lead to disastrously rising sea levels and more extreme climate events, and these are developments that will pose 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 thawing Arctic permafrost. This would disrupt ocean currents or cause other cascading environmental calamities. These risks, according to the Pentagon, 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 cover the ratcheting up costs of mitigation and adaptation.

Henry M. Paulson, 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. 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 much higher price on carbon emissions, for instance, would create powerful incentives for resource conservation, and for finding more efficient ways to use fossil fuels. This would spark innovation and rapidly advance the development of cleaner alternative energy sources. The 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. With a fee-and-dividend plan, all citizens would receive dividends generated from carbon taxes every year. It also would be vastly fairer to people in future generations to take some such action to slow the depletion of fossil fuel resources, and to 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."

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 who in general enforce unfairly skewed justice. Governments are run by often corrupt politicians who pander to giant corporations and make job-offshoring trade deals, and they seem like obtuse and unaccountable behemoths that profligately squander public funds. In contrast, big government represents a potential cash cow to insiders and fat cats, a lady of easy virtue that can be easily manipulated to gain huge benefits. Bureaucratic institutions can give established interest groups big profits in good times and then bail them out when the inevitable day of reckoning comes. Taking advantage of this, wealthy people use their money to subvert our political system to gain excessive influence and engineer great benefits for themselves, often creating periodic hard times for the masses.

Scheming politicians then exploit the frustrations and anger of voters at the corrupt nature of our politics to stir up resentments, prejudices, paranoia, vitriol and suspicion, and they use negative attack ads on television and social media to advance ideologically conservative causes in too often successful efforts to get the populace to elect candidates who are complicit with this hard times swindle. When "conservative" politicians get elected, they in particular are prone to abusing their power to perpetuate this unethical scam 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 deadly charm.

Here is an astonishing perspective from one of our Founding Fathers. It is 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 great hopes for sanity and common sense once again sound a warning bell, alerting us to the fact 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 ..."

--- Noam Chomsky

Anti-establishment sentiments have grown strong, as reflected in the powerful support given to both Bernie Sanders and Donald Trump when they were presidential candidates in 2016. There is good reason for this. As experts have concluded, the United States has become an oligarchy controlled by the few, and the preferences of economic elites and organized interest groups are completely 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, extreme partisanship prevails, and is torpedoing the common good.

Extreme partisan paralysis serves economic elites in our political duopoly system, because it allows profits to continue to have much higher priority than people, and gives the pursuit of power and privilege more importance than common good goals. Ideology has become a more important determining factor than honest and fair-minded principle, and divisive strategies are taking precedence over honorable efforts to find consensus 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*. 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 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."

"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 associated with 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 value of conserving natural resources and protecting ecosystems and the 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 2100. 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 the future, and we should rightly alter that path.

Pope Francis has expressed blistering criticism of capitalism in the 21st century, and he has voiced skepticism about 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 duties and habits and stimulated needs. As a result, 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 in conflict. Hayhoe says that perhaps the biggest risk we face is that we will be paralyzed into inaction on climate change issues by cultivated doubts, stoked fear, polarizing partisanship, greed-driven indifference, cultivated misunderstanding and ideological stubbornness. Deception and demagoguery are also big hurdles.

Think about this. Many broad concerns have been expressed about the increasingly probable apocalyptic consequences of human activities over the long term. The level of these concerns ranges 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 cannot afford to deny growing risks when such denials likely make looming problems much worse. And we also should appreciate the perceptive point of view expressed by the wise Dalai Lama, who once said: "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 \$200 billion in the last three years alone," I wrote in the spring of 2016, well before the catastrophic hurricanes of 2017 added emphasis to this fact. One need not be an accountant to know it is folly to profligately squander assets instead of investing in earning a sustainable stream of income to finance operations and make 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 dilemmas associated with climate change, and created another excellent film titled *Time to Choose*, in which he commendably emphasizes the global nature of challenges related to carbon emissions. The film 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. Ferguson also thoughtfully 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 declaring: "The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive." And it was a popular talking point for years 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 climate extremes. It seems clear to me that politicians say this to avoid admitting they are beholden to vested interest groups like the industrialist Koch brother billionaires and executives in fossil fuel industries, instead of 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 pretty soon if we just rigorously stick to a top national priority of giving low tax rates to 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 obsequious 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? It's an unmitigated disaster!

Such policies lead to spiking levels of national debt, along with harsh austerity policies, and this hurts society as a whole, and our democratic republic. These misbegotten priorities hurt poor people and the middle class and old people and young people, thereby seriously undermining the vitally important quality of social cohesion. And they will wreak hardships on everyone in the future.

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."

"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!"

--- Mark Twain, Letter to J. H. Twichell, January 29, 1901

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. At this meeting in 2009, known as the *Thomasville Rebellion*, he observed. "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."

Evangelical conservatives have collaborated with Big Business in a distinctly unholy alliance that gives lip service to hot button social issues that evangelicals care passionately about. But then politicians who represent rich people exploit this support to secure trillions of dollars in tax cuts for corporations and the people with the highest incomes and the most wealth. Some ethical evangelicals are now 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.

This virtuous force has the moral rectitude to begin counterbalancing the excessive influence of mouthpieces for the religious right who have transparently sold their souls in a proverbial 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. Unfortunately, evangelicals overwhelmingly voted for Trump and continue to support him because of his reactionary stances on gay rights and abortion, effectively sacrificing the environment to cling to their biases.

Robert Reich wrote an incisive editorial in September 2015 in which he expressed the compelling opinion that America is experiencing a significant crisis in public morality at the same time that many Republican presidential candidates and state legislators were furiously focusing on narrow-minded approaches to private morality. He was specifically thinking of what Americans do in the privacy of their own bedrooms, the use of contraception, and laws concerning abortions, gay marriage and basic rights for lesbian women and gay men. He pointed out some of the socially serious ramifications of this crisis in public morality, like the fact that CEOs of large corporations are earning more than 300 times the wages of average workers. He pointed out 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." Meanwhile, the wages of average working people continue to languish as jobs are off-shored or given to "independent contractors."

Theologian Michael Lerner has given 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 a growing insensitivity to the needs of the poor and the powerless."

Here is a great story about the unfolding realization 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 the American Legislative Exchange Council that strive to undermine protections of the environment and oppose responsible efforts to mitigate the 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 champions bold climate action. Sadly, Donald Trump's unilateral 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.

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?

Changing weather patterns 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. Stunningly, there has been a net increase in the population of people on Earth that has exceeded 70 million people each and every year since 1965. Every year from 2010 through 2017, this net increase in the world's population has exceeded 82 million people -- the highest annual increments since 1994. Given this context, staunch opposition to family planning and to 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 2016, the results of a detailed analysis are adduced that show a shocking decrease of almost 60% in the populations of more than 10,000 representative species of mammals, reptiles, birds, amphibians and fish since 1970. More than three-fourths of the populations of freshwater species have astoundingly been lost in this short period of time, along with almost 40% of the numbers of both marine and terrestrial species. The primary 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 Report states:

"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 think tank 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 20 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. Obviously, there is only one Earth!

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. Our activities in aggregate are altering the gaseous composition of the atmosphere, and 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 was completed by a number of agencies of the United Nations. The report, titled *Water for a Sustainable World*, revealed that there will be a shortfall of about 40% in fresh water supplies worldwide by the year 2030. Only 12 years from now, the number of people without access to adequate supplies of fresh water is projected to increase from 750 million people currently to over 3 billion people. Woel! The report also indicates 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 nation'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.

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 as many as 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 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 may have 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 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 7.5 billion in 2017, 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-causing rate.

There are other scary signs that we are in a situation of ecological overshoot. For instance:

-- 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. And the extent and thickness of Arctic sea ice is showing a long term decreasing trend. Respected scientist Dr. James Hansen and 16 other climate scientists warned in July 2015 that potential feedback loops could cause sea levels to go up much faster, with a possible disastrous rise of as much as 3 meters -- almost 10 feet! -- in the next 50 years if international goals for greenhouse gas reductions are not made significantly stronger. This would have extremely adverse impacts on human civilization, with catastrophic economic consequences, social disruptions, 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 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, sustainable capacity. The North Atlantic cod fishery, as a glaring example, had been fished sustainably for 500 years, but then Northern Cod fish stocks fell to 1% of earlier levels and a moratorium on Cod fishing 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 population of beautiful and iconic monarch butterflies in the eastern U.S. has declined by 90 percent in just the last 20 years.

-- The phenomenon known as honeybee colony collapse disorder is getting worse. A recent 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 that are 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. Some 70 billion farm animals are being raised for food, contributing 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 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.

-- In 1998 more than 45% of people in the world had to live on incomes averaging \$2 a day or less. Meanwhile, the richest one-fifth of the world's population has 85 percent of the global income, and the gap between rich people and poor people has been widening. The richest 1% of people in the world now own about 50% of the total global wealth. Levels of income and wealth inequalities are today the most extreme since the Gilded Age more than 100 years ago, and this has the effect of seriously eroding social cohesion and making cooperative efforts to cope with gathering global challenges unnecessarily difficult.

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."

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 safe and legal abortions. Unfortunately, established religions worldwide, and the biggest two in particular -- Christianity and Islam -- are still opposed to such 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 money are involved, but this stance is becoming increasingly archaic, from demographic and ecological standpoints, as the world population increases past 7.5 billion. The need for proactive family planning policies is growing, and religions need to alter their opposition to family planning and contraception.

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

The scholar William Robert Catton has written 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 one city in the world with a population exceeding 10 million people. Today, Wikipedia lists more than 45 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 change alter prevailing conditions.

Many scientists who study population dynamics and population ecology believe that humankind is already in a "population overshoot" condition. 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 that are available. The carrying capacity can also be regarded as the number of individuals an environment can sustainably support without significant negative impacts to the given species and to the ecosystems that support it.

Humankind is in a state of population overshoot due to both overpopulation and overconsumption. Lester Brown of the Earth Policy Institute has said: "It would take 1.5 Earths to sustain our present level of consumption. Environmentally, the world is in an overshoot mode." Estimates by the United Nations suggest that if current population and consumption trends continue, we will need the equivalent of two planet Earths to support the world population in about 12 years, somewhere around the year 2030. At consumption levels of the average American, 5 planet Earths would be required, and wealthy people place even heavier demands on Earth's resources with their exceedingly heavy ecological footprints.

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 definitively 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 increased the carrying capacity of the world for humans. 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, that 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 weather extremes indicate that the many 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, pesticides, composting, fish farming and land reclamation. On the other hand, many technologies have enabled big corporate entities and individuals to inflict much more environmental damage than ever before in history, and to do so more quickly and 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 gas bubbles 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 an Observatory high atop the Big Island of Hawaii's Mauna Loa volcano in one of the most remote areas of the world. This represents an increase of 35 ppm in 200 years. Then, in the following 30 years, by 1978, this greenhouse gas concentration increased another 35 ppm to 350 ppm. 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 released 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 410 ppm was recorded in 2018. Extrapolating the increases in atmospheric carbon dioxide as measured atop Mauna Loa, carbon dioxide 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 efficiently and frugally, and make more concerted efforts to switch to cleaner energy alternatives. This amount of heat-trapping gases approaches a threshold that could cause a double-glazing of the planet and create millions of "climate refugees" from flooded coastal areas that will be caused 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 planet, 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 intolerably 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 if we are to prevent catastrophic global warming and extremely costly future weather-related disasters and sea level rise. We should rightly include refusing to open up beautiful protected public lands like designated National Monuments to private extraction of coal, oil and natural gas. Our representatives should start to honestly

represent the best interests of the people rather than the narrow financial interests of giant corporations, by standing up and doing the right thing to reject greedily myopic efforts to exploit public resources.

Living within a reasonable carbon budget is a daunting 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 that further development of the high carbon tar sands from Canada that would be carried in a Keystone XL pipeline would be foolish, and could contribute to an unfolding "tragedy of the commons" of the first order. 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."

The speed at which we are entering uncharted waters for civilization cautions us to slow down, wise up, and commit 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.

Real News - Sad!

Evidence proves emphatically that the corporate world, in aggregate, cannot be trusted to do the right thing when it comes to protecting either the public health or the environment. Corporations are far too narrowly focused on achieving their two main legal purposes -- maximizing private profits and protecting management and shareholders from legal liability. This leaves the responsibility to governments to create truly fairer societies. We need smarter governance and more long-term-oriented national decision-making. *We the People* deserve better than the corrupt status quo. We want food safety, clean drinking water, safety from exposure to toxins and pollution, workplace safety, gun safety, and better security from heightening dangerous human-exacerbated "natural disaster" impacts from greenhouse gas emissions.

Donald Trump's unilateral decision to withdraw the United States from the Paris Climate Agreement is "a shameful mistake of historic proportions", stated Michael Brune, Executive Director of the Sierra Club. This mistake reflects Trump's "America First" disdain for international cooperation to solve global problems.

Sensationally, Trump had signed a full-page advocacy letter to President Obama and Congress in December 2009, published in the New York Times, that urged the passage of strong legislation to combat climate change and "lead the world by example." The letter states, **"If we fail to act now, it is scientifically irrefutable that there will be catastrophic and irreversible consequences for humanity and our planet."** The letter adds that investing in clean energy "will spur economic growth, create new energy jobs, and increase our energy security all while reducing the harmful emissions that are putting our planet at risk."

Fast forward seven years, and Trump declared he was withdrawing the U.S. from the Paris Climate Accords. This action is a rash, retrogressive, coldly calculated case of pandering to powerful profiteers and people in his narrow and easily manipulated political base at the expense of future well-being. This act is hostile to people in almost every other country on Earth, and indulgently myopic. It is an anti-environmental, money-grubbing act that is antithetical to intelligent foresight and cooperative fair-mindedness, and contrary to environmental justice and sustainable living.

At the bottom of the 2009 open letter about climate action, an African proverb is quoted: "If you want to go quickly go alone. If you want to go far, go together." Trump has obviously decided to go it alone, and the condemnation from the majority of political and business leaders was swift and unforgiving. California Governor Jerry Brown succinctly summarized the folly of Trump deciding to withdraw the U.S. from the Paris Accords, saying, "It's odd. It's wrong. It's dangerous."

Michael Brune, Executive Director of the Sierra Club wrote, "Our grandchildren will look back with stunned dismay at how a world leader could be so divorced from reality and morality. He is abandoning millions of Americans who will bear the brunt of climate disruption -- from record floods to droughts and hurricanes that destroy people's homes and livelihoods."

This action is a dumb "doubling down" on the mega scam of allowing individuals and corporate entities to socialize more costs by externalizing them onto society. It would be much smarter to formulate powerful monetary incentives to influence people's behaviors by putting a fair price on carbon emissions into the atmosphere. For a bigger picture understanding of what Trump and his minions like Scott Pruitt are doing, and who they are pandering to in making this decision, and the ruses involved, and the corrupted consequences of this backward plan, see *The Top Ten Ways Our System Is Rigged*.

There is an old saying in the design community, "Don't cling to a mistake just because you spent a long time making it." It may be hard to admit when we are wrong about something, and may now be living a mistake, but it is much worse to not admit this and instead let it impact our health, vitality, security and future well-being.

Trump's decision is basically to allow fossil fuel corporations and other entities to increase the amount of costs they are able to socialize in order to record artificially increased profits. This allows investors to gain the spoils of this lax policy -- and the irresponsible plan is coupled with regressive tax schemes that allow those receiving most of the benefits to pay low capital gains taxes on them. One bottom line impact of these policies is to dangerously increase the concentration of wealth in the hands of the few.

The Gibson Climate Change Resolution

The Citizens Climate Lobby sensibly declares, "The risks of climate change are far too great to get bogged down in partisan politics." So it is heartening to see that 24 Republicans in the House of Representatives have signed on, as of May 2018, to a Republican Climate Resolution that recognizes the impact of climate change and calls for bold action to reduce future risk.

New York Republican Congressman Chris Gibson introduced this Resolution, and it represents a potential great breakthrough among Republicans, tantalizingly offering the hope that Congress could possibly 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." And 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."

With 24 Republicans on board with this farsighted understanding, now we the American people should turn our collective gaze on the other 211 Republicans in the House, who 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. 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, for exceedingly narrow personal advantages. See Postscript Two (or online), for the text of this resolution.

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 conservation, social responsibility, and 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-\$50 range in the first half of 2016.

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 Limits to Growth* was first published, many industrialists, politicians and economists raised their voices in outrage at the suggestion that population growth and material consumption should be reduced. The preponderance of economic ideologies prescribes 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 45 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 have proved them wrong.

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 presented 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 the 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 into the atmosphere. A disturbingly large proportion of all greenhouse gas emissions are caused by 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 daunting litany of environmental problems related to eating so many cows, pigs, sheep, goats, chickens, turkeys, ducks and fish, the heavy emphasis on eating animals for food often involves profound ethical issues like the horrendous 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 40% 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 in ocean water, but this terminology should not distract our attention from the sobering

fact that this development 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 some 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 humanity 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 catastrophic consequences that will be associated with greenhouse gas warming. Unfortunately, as seas absorb carbon emissions and the amount of carbonic acid in ocean waters increases, this acidity kills coral reef communities and adversely affects many marine organisms, impairing the ability of the oceans to provide for our growing demands.

Sylvia Earle has made an excellent 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 also recommend another even more exceptional film titled *Home*, which was produced by the famous French aerial photographer Yann Arthus Bertrand. This film contains beautiful aerial photographic images from 54 countries, and is narrated by actress Glenn Close. It cogently provides a powerful ecological message and evocatively 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 distant over space and time. Most people basically want to "get a free ride" rather than to shoulder any of the costs of mitigation initiatives. Worse, current generations are motivated to ride free by pushing costs of dealing with climate change onto people in future generations. 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 the next steps in codifying the Paris Accords. Ominous reports in the four months following the Paris agreement have buttressed skepticism of the potential 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. "NASA is projecting that 2016 will break the annual heat record for the third year running; Greenland's ice sheet is experiencing springtime melt several weeks earlier than average; 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."

Aote Tong, the former president of the Pacific Island nation of Kiribati, is the subject of a good documentary film, *Aote's Ark*, about his struggle to find haven for his people, whose home islands are soon-to-be submersed as greenhouse gases increasingly contribute to sea level rises caused by the thermal expansion of sea water and the accelerating melting of glaciers and ice sheets. A compassionate audience of the film gave a standing ovation as Aote Tong bookended an on-stage discussion with blessings in the tradition of the Kiribati people and 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 reveals that rich nations have prospered by wastefully engaging in carbon intensive uses of fossil fuels, so they are responsible for most of the carbon dumped into the atmosphere in the past 100 years. It was just about 100 years ago that the concentration of carbon dioxide in Earth's atmosphere first reached 300 ppm. Then, it first exceed 400 ppm in 2013, and in April 2018 it reached a sobering 410 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 responsibly for their obligations and contribute big amounts to the Green Climate Fund established in the international environmental treaty in 1992 called the United Nations Framework Convention on Climate Change. Its purpose is to assist developing countries in adaptation and mitigation practices to counter the impacts of climate change. The USA must not hubristically stint on its obligations to generously contribute to this fund, for that would be to shirk its responsibility for fairly funding this fund.

But by planning to pull the U.S. out of the Paris Accords, Donald Trump is rejecting the Green Climate Fund and 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 in the last 100 years to contribute more money to covering the costs of mitigation and adaptation to changes in the global climate and sea levels.

These perspectives makes Trump's decision to withdraw from the Paris climate agreement look really stupid.

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

--- Donald Trump, December 2015

Trump adduced some irrational and in many ways stupid rationalizations for this 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 of 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 extremely 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 yet with trepidation. They are laughing at the absurdity of many of the things Trump says and does and tweets. 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 and avarice, and his abuses of executive power are stoking people's fears as well as provoking their cynical laughter. In defending the indefensible, the Idiot-in-Chief is proving to be uncooperative with other nations on the world stage.

The anti-Paris move is the last straw. "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 smart planning and good management. 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 the future.

Big Picture Perspectives

A headline in a national newspaper in 2005 read, *Humans' Basic Needs Destroying Planet Rapidly*. This article concerned a study called the Millennium Ecosystem Assessment in which more than a thousand experts in 95 countries had spent four years compiling their findings. The Assessment concluded that the human race is unsustainably consuming natural resources, and that we are simultaneously degrading the ecosystems upon which we depend. It also 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 an extraordinarily good 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 profit-making in the short term, we should be emphasizing sustainable development, resource conservation, fiscal responsibility, good governance, fair-mindedness, 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 annually 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 much smarter bet, we

would impose offsets to the eternalizing of costs, and eliminate the perverse incentives of 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 decade to mitigate the threat and put in place adaptive countermeasures. The IPCC's latest assessment in 2013 indicated that sea levels would very likely rise by one meter (3 feet) by 2100, so this probability makes it clear that hedging our bets is a true precautionary idea.

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 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 has sent a series of epic storm systems into a stronghold of climate change deniers in Texas in the past few 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 the 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 label 'cornucopian' 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. One common example of this labeling is by those who are skeptical of the view that technology can solve, or overcome, 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 and 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 costs currently being externalized 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. 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 are fewer hungry people in the world today than there were 25 years ago, according to *The State of Food Insecurity in the World 2015*, a recent report done by the United Nations. The number of hungry people globally has declined about 20% from one billion in 1990 to under 800 million today, 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 of the countries that had met targets outlined in the Millennium Development Goals.

Of course, there are 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, the one Millennium Development Goal that is least in evidence of being attained is *Goal 7: Ensure Environmental Sustainability*. This shortcoming is a leading indicator for worser 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 almost 50 percent 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 do not, however, 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 about 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 the 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 the exploitation of workers and natural resources. It is also due to their jealous and stalwart defense of the laws and conditions that enable them to gain this substantial monopoly.

Intense discord today is ramped up by the growing injustice of increasing inequities. This condition is egregiously exacerbated by divisive propaganda that takes advantage of people's insecurities, fears, prejudices, fundamentalist religious convictions, and gullibility in believing manipulative spin propagated by operatives in conservative think tanks and argumentative talking heads in the media and emotionally exploitive political advertising. 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 workers, 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, 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 internecine 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 the Earth Manifesto's *Common Sense Revival*.

Curiously, our economic system today still exploits black people by compensating them much less than white men. The average pay for black men is only 75% as much as the average for white males, and the average for black women is only 64%. For Hispanic men, 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 of climate change is fair-minded political leadership. Tea Party conservatives have become mentally obese 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 and Rush Limbaugh's retrogressive prescriptions. Trump Republicans are downright scary in their blind obedience to half-baked proposals, and 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 has been the Republican chairman of the Senate Environment and Public Works Committee since January 2015. In this capacity, he is responsible for dealing with matters related to the environment. Unfortunately, he is 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 declares, 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 virtually unanimous in confirming that human activities are the main factors wreaking havoc on global climatic conditions and causing extreme weather events.

James Inhofe is not stupid. He is shrewd, and his shrewdness constitutes a blatant conflict of interest. It 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 titled *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 climate deniers and legal beagles to cast doubt on climate change impacts. Paid for by huge corporations prepossessed 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 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.

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 international 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.

Jeb Bush adopted a new strategy during his abortive run for the presidency, and it is beginning to be preferred by the Republican Party establishment. This is to stop denying the science of climate change, "because that makes Republicans look stupid." Instead, the more sophisticated new tactic is 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 perspective was provided 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 for extremely partisan gerrymandering and against illegal immigration, women's reproductive prerogatives, contraceptives, safe abortion, sensible criminal justice reform and responsible climate action.

Houston has adopted the official 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 it's 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 staunchly oppose honest efforts to address the big problems like climate change that confront the world today. Additionally, Houston has deplorably given the nation Senator Ted Cruz, a sadly pathological and objectionable contribution to incivility and wrongheadedness in our national politics.

In a funny aside, the former 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 state to rising sea levels and storm surge damages, so it is especially odd that, in a widely publicized action, Republican Governor Rick Scott reportedly banned state officials from using the phrase "climate change." Sticking one's head in the sand is not a real smart 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 and left costly calamities in their destructive wake. Perhaps these hurricanes will change this cold calculus.

Cynically, the Trump administration has eliminated funding for NASA's Carbon Monitoring System — a vital research program dedicated to tracking carbon in the atmosphere. This action is not just arguing about or denying climate change — it's refusing to even collect data. The move jeopardizes plans to verify the national emission cuts agreed to in the Paris climate accords, says Kelly Sims Gallagher, director of Tufts University's Center for International Environment and Resource Policy in Medford, Massachusetts. "If you cannot measure emissions reductions, you cannot be confident that countries are adhering to the agreement," she says. Canceling the CMS "is a grave mistake," she adds.

We should rightly develop and implement practical solutions to build a healthy environment and a safer world, instead of burying our heads in the sand, which 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 solutions to the most challenging environmental and global security issues of our time, as contributors to the Union of Concerned Scientists are doing.

A bipartisan Climate Solutions Caucus has been formed 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 vulnerable areas of southern Florida. "The question is, how long will it take?" Yes, how long? The clock is ticking.

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 lead to higher and higher sea levels. 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 backwards with Trump and Pruitt in charge.

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 drove global oil prices down by more than 70% and then volatility has reigned as they have climbed in the past year, 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 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 crucially has more than 80 times the heating impact of carbon dioxide over a shorter 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 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 billionaire Koch brothers and countless lobbyists and "conservative" political insiders are trying tirelessly 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 socially harmful actions. Privatizing profits by socializing costs is shrewd, but such efforts are socially unacceptable when the risks associated with such tactics are so costly. It is sad to see people like billionaires Charles and David Koch deny the far-reaching environmental harms that are resulting from their industrial and political actions, and to realize how they are using their ill-gotten riches to corrupt our national decision-making and prevent reforms that would help us deal responsibly with the issue of anthropogenic climate disruption.

This influence peddling is corrupt, and it gives odd credence to an ominous observation made in 1991 by the American political satirist 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 Vatican conference 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 is naturally a bit cynical about climate deniers, citing their "fierce

opposition and blind inertia" and their attempts to "falsify the scientific record" to persuade the American people that global warming is not happening, or is not correlated with 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 have outsized influence because of their wealth owe it to society to be responsibly magnanimous in helping make our societies better, rather than obstructing progress by abusing their influence for selfishly shortsighted purposes.

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. What he is really saying, however, 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 daunting social and environmental problems that confront the U.S. and the world.

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. 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 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 that "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*." He has emulated demagogic ideologues by comparing the EPA to the Gestapo in Nazi Germany, and he has pushed to roll back water and air pollution laws, and ozone limits, and funding for contamination cleanup. Then Trump got elected and appointed Scott Pruitt to head the EPA, a man who is so eager to satisfy fossil fuel industry goals that is in effect opposed to the agency's primary animating purpose of protecting human health and the environment.

Another retrogressive politician is Republican Senator Lisa Murkowski of Alaska who is the chairperson of the Energy and Natural Resources Committee in the U.S. 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 the fact 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 three 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 of their extinction 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 very 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.

Poor developing countries 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 typhoons, 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.

"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."

--- *Existence, Economics, and Ecological Intelligence*

"Meanwhile, global emissions continue to rise." This is why the United Nations 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 we can expect to see 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 or 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 region 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 fight to replace him will exert unusual influence over the health of the planet and the survival of its natural systems, for it will alter the legal battle over the Clean Power Plan. After blocking a well-qualified Obama nominee for almost a year, Republicans changed long-standing Senate rules to put an extreme corporate friendly conservative on the Supreme Court, boding ill for human well-being. And then the illegitimate triumph of Trump Republicans in grabbing power has shifted this calculus even further in the wrong direction.

Robinson Meyer wrote in *The Atlantic*, "The Clean Power Plan is the new set of Environmental Protection Agency regulations that anchors the Obama administration's climate-change policy. It seeks to guide local utilities away from coal-fired electricity generation, and toward renewable energy and natural gas, a change that the Department of Energy says will forestall hundreds of millions of tons of greenhouse gas emissions. The plan's survival - and its entry into law - could decide the fate of the Paris Agreement, the first international treaty to mitigate climate change. For a case that will ultimately turn on administrative law, it's hard to imagine the stakes being much higher."

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 high and 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 perversion of justice and sanity.

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."

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 blindspots, 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 reimagine climate change, for it is not an impossible problem. Rather, it is one we can halt 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.

"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."

--- The Washington Post

A profoundly perplexing existential 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 that are 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!

Images of Superstorm Sandy in October 2012, and of Philippine Typhoon Haiyan in November 2013 -- and of Hurricanes Harvey and Irma and Maria in 2017 -- provide cogent evidence of the high costs of this gathering risk. And a severe five-year drought in California, followed by record rainfalls there, provides corroboration of this evidence, as does the very bad wildfire season in the summer of 2017.

Houston, here we have another problem. After the Southern Baptist God seems 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. We must change course!

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."

A forward-looking movement is needed 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.

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 over \$21 trillion today. During this period, the net worth of the top 1% has increased by over \$25 trillion, so in a sense we have foolishly borrowed more than \$20 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* and *McCutcheon* rulings 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, made on June 21, 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 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 — and renewable energy — 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, as of May 2018, to a Republican Climate Resolution that recognizes the impact of climate change and calls for bold action to reduce future risk. Let's demand that the other 211 Republicans 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 and environmental burdens, 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.

Germinating: Seeking Inclusion in the Earth Manifesto

Ice Age glaciers once covered North America and gouged out deep depressions in the landscape that created the Great Lakes when they melted about 10,000 years ago.. They also covered the area where New York City lies today with ice 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 extraordinary U-shaped valleys from the solid granite rock. 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 that 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, equally large temperature changes could raise sea levels dramatically and cause severe flooding, as well as weather extremes that will likely cause terrible damages. These changes could result in more than 100 million people around the globe becoming environmental refugees during this century alone, and it could spell extinction for thousands of species of plants and animals.

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 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 for free 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 open ocean

toward Rapa Nui, also known as Easter Island, and you will see a line of 15 of those renowned mysterious monolithic volcanic stone statues known as moai ("mow-eye"). Here is what Glenn Close says as you fly over 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. 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 to settle 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 for the delicious 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 today gazing mirthlessly over our shoulders, 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 maybe 12,000 in the year 1600 to two or three thousand a century later. Introduced diseases from European sailors and Peruvian slave raiding is said to have further reduced the native population to only 111 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 are gazing mirthlessly over our shoulders, mutely witnessing our mindless depletion of resources, as if with a detached omniscience like that of Mother Nature, though with infinitely less actual influences. Ominously rapid increases in human numbers, especially in Africa, 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 that 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, and they contemplate the countless complement of human beings yet to be born. And, in the most astonishing accord in the entire span of human existence, I imagine every single one of these human beings in future generations urging each living person to heed the farsighted and Promethean foresight-informed insights

conveyed in the Earth Manifesto. The overarching message being conveyed in this stoic stone stare needs to be interpreted properly, for it is a matter for the utmost attention and the 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, featuring humanity striving to adapt to the changing demographic, ecological and biotic conditions on the planet.

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*. In summary, Chait noted, "The world is suddenly responding to the climate emergency with -- by the standards of its previous behavior -- astonishing speed.

"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 on the international stage, 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, and 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, in the spring of this year, 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 his bilateral pledge with China last year, 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. (Senate Majority Leader Mitch McConnell *scoffed* that last November's deal "requires the Chinese to do nothing at all for 16 years.") Or else, too difficult. ("China's commitment to reduce carbon emissions is unattainable and unrealistic," wrote Inhofe.) Or they have simply carried on as if China had made no changes to its behavior at all. (Marco Rubio, this summer: "As far as I can see, China and India and other developing countries are going to continue to burn anything they can get their hands on.") ...

"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 pathetic profit-prepossessed 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. Stay tuned!

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 demonstrated 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 September 2017, after the year 2014 became the warmest year ever recorded in human history, 2015 broke that record, and 2016 in turn broke this record. And Hurricane Harvey, Irma and Maria in 2017 make scientific predictions of intensified storms due to the greenhouse effect seem amazingly accurate.

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, Hurricane Harvey's torrential rains dropped 50 inches of precipitation in the Houston area, the most rainfall ever recorded in the U.S.

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 great 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 forty 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, 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.

The extreme agenda of conservatism 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 reassurances 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 knowing the real gruesome nature of such operations.
- (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

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 thoroughgoing 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 professes to speak. 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 big 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 currently control 70 percent of state legislatures and more than 60 percent of governor's offices -- 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 unprecedented 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 swooned over "the love that this man radiates" after Francis blessed her rosary beads. Pope Francis had just 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 population 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!**

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. It requires 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 ongoing 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 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 narrow 5 to 4 majority of "conservative" Justices on the Supreme Court nod 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 vociferously 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, contributing to 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 the protection of more of the world's forests, which take carbon dioxide out of the atmosphere through the process of photosynthesis. Instead of doing this, of course, humanity is chopping these forests down at alarming rates, especially in the tropics.

None of the contingents within the Republican Party seem to honestly place emphasis on reducing unemployment, which spiked to very high levels during the recession of 2008. Republican actions consistently favor plans that serve to increase extremes in disparities between the Haves and the Have Nots in terms of income, wealth, opportunity and education. Few of their proposals seem designed to really create good jobs or fairer outcomes.

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 for 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 conservative representatives to compromise on assessing higher taxes on the fortunate few, who have never had it better, is irresponsible from standpoints of fiscal, social, and environmental considerations.

"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 torn asunder by stubborn 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 the 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 and honestly ethical. I urge voters in particular to reject any Republican candidate in all future elections if they oppose fair-minded solutions to the epic challenges like climate change that we face in the world today. Their dishonest and 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 influences 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 that seek to divide people in order to gain power and control over them. The Supreme Court, narrowly dominated by conservatives until Antonin Scalia died, 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.

Jolly's success was secured by heavy spending from outside political groups that are corrupting our political system. This was the most expensive Congressional race in history until that date. This spending resulted in a very ugly spate of negative and often dishonest attack ads that are making Americans despise their money-corrupted political system. We will not get fair-minded policies if we continue to let Big Money subvert our political system.

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 Trump appointed Neil Gorsuch, the newest Supreme Court Justice was assessed to be even further to the right.

Since Supreme Court Justices are appointed for life, it is vital that more fair-minded aspirants are appointed to all 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 the 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 is now termed 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 Federal Pesticides 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 brinkmanship, 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 the Land and Water Conservation Fund Act of 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 1973, not long after the founding of the annual occasion of Earth Day, the famous and curiously controversial book *The Limits to Growth* was published, creating an international sensation. This book was commissioned 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.

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."

On the 30th anniversary of *Limits to Growth* in 2003, *The 30-Year Update*, a comprehensive update was produced to the original *Limits*, and the authors concluded that humanity is dangerously far along in a state of overshoot. While some progress was achieved in the intervening 30 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 if the world is to avoid the 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 increasingly 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 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 that is 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 map illustrating satellite data from a joint U.S.-German mission named GRACE, the Gravity Recovery and Climate Experiment, was launched in 2002. It consists of two satellites that fly separately in orbit just over 136 miles apart. The satellites monitor slight changes over time in Earth's gravitational pull that occur when large quantities of water appear as snow or rain, or disappear due to drought or groundwater pumping. "This is the global picture and it's bad," said hydrologist Jay Famiglietti, a professor at UC Irvine and director of the UC Center for Hydrologic Modeling. "All those red spots are hotspots 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 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", 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 into our thinking. More needs to be done to adopt "smart growth" policies, considering the limitations of water supplies. Some proposals for large 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," said Jay Famiglietti.

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 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."

Potential Solutions to the Groundwater Crisis

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 film *Pumped Dry* 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 and food production and 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, influence, money, family planning rights, religious differences and terrorist strife. This corruption of our national priorities makes us all participants 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 political will to put into effect comprehensive plans to prevent desperate circumstances from arising. The producers of the documentary film *Pumped Dry: The Global Crisis of Vanishing Groundwater* 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 simply 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 yet to be born.