

Climate Change: Rethinking the Debate

Rob Sayre
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The debate about climate change has mirrored the political divide in the U.S., with the political party in power standing behind their own understanding and agenda. President Obama signed the Paris Climate Accord and in June, President Trump pulled out of this international agreement to limit CO2 emissions and reduce the worldwide temperature by 2°C.

At the heart of the disagreement is whether or not the rises in temperatures are manmade. Over 30,000 scientists and others insist no. Just as many

other scientists, including those from NASA, say yes.

The U.S. military is already planning how to respond to rising sea levels regardless if this is due to man's activity, natural forces, or both. Pope Francis in his encyclical on climate change, exhorts us: solving climate change means protecting the planet and vulnerable people, and we must hear "both the cry of the earth and the cry of the poor." Faith can guide us. "The entire material universe speaks of God's love, his boundless affection for us. Soil, water, mountains – everything is, as it were, a caress of God." Other religious views provide a similar outlook.

The Foreword to *God's Will and the Ocean*, Rev. Sun Myung Moon's collected words on the ocean providence, notes,



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"The Third Blessing exhorts humankind to take its proper position in the universe: ' . . . and replenish the earth and subdue it and have dominion over the fish of the sea, and of the fowl of the air, and over every living thing that moves upon the earth.' Thus humankind indeed becomes the God-centered caretaker of the world, empowered by the benevolent love of God rather than greed and selfishness. In essence, these are the responsibilities of humankind, and when respectively fulfilled, they become the wonderful blessings of life."

If we substitute stewardship for dominion, I think we get the essence of what Father Moon taught about man's proper relationship with the Creation.

One Metric is Not Enough

Worldwide temperatures are too broad a metric to use as a decision-making tool. This one metric is being used to guide nations worldwide to make significant policy decisions and monetary investments. The scope is too large and while not inaccurate, it is less relevant and helpful in making decisions. Does anyone use the average temperature of their country to determine their current driving conditions? Of course not. We use more relevant and local predictive tools. And so it should be with climate change.

Climate Differs from Weather

There are new frameworks of understanding emerging that can help us. The first is the distinction between weather and the climate. Weather and weather patterns occur naturally and changes are largely understood. Climate, in a broader definition, includes not just the weather, but also all the biological systems that make up what supports life on earth. Climate change, by this definition, is the balance of all these, the underpinnings of life itself. When you add in human developments such as the economy and political systems, you have all the requirements for man to live on earth. The economy as a whole and in each nation and local area are part of the larger climate. Humankind needs the natural systems as well as those man created, as co-creators with God of our political and economic systems.

Respecting and Understanding Planetary Boundaries

From the work of Anders Wijkman and Johan Rockstrom in *Bankrupting Nature*: "Awareness of the risks of climate change is reasonably large today. But understanding of the interactions between the atmosphere and the biosphere and the risks of deforestation, overfishing of the oceans, loss of agricultural land, overuse of fresh water and biodiversity loss is much more limited."

CO2 emissions and rising temperatures are only one metric that should be considered. With the world

population growing rapidly toward eight billion, the impacts of this growth are unmistakable. The biospheres that support life are incredibly resilient, but not infinite. Exploring the boundaries of sustainability and appropriate metrics provide a path forward, beyond base politics. Here are seven boundaries to consider:

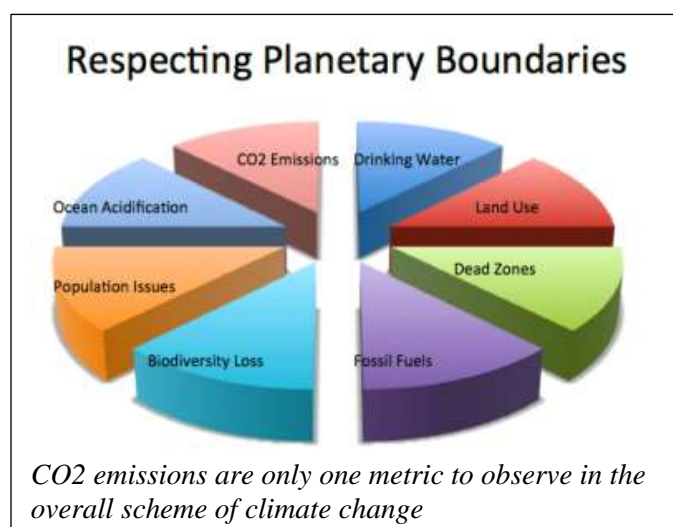
1. Dead zones caused by agricultural inputs

Fertilizers, pesticides and other agricultural chemical inputs raise yields and benefit everyone. However, they have a negative impact. The continued use and degradation of the land itself causes their use to increase and the runoffs into the water systems cause significant damage downstream.

The Susquehanna Water Commission is an example of a regional solution to measure and maintain the water quality of the large watershed that ultimately empties into the Chesapeake Bay. This includes controlling the agricultural runoffs, water quality issues caused by nuclear energy plants, shale production, and sewage from cities in a huge area covering parts of New York, Pennsylvania and Maryland. The water quality of the Chesapeake Bay and Washington, DC, area are directly impacted by the activities controlled in the states of New York and Pennsylvania. There are examples of this kind of environmental degradation throughout the world. Understanding the root of this issue is essential, even if the solutions in any given area may vary.

2. Ocean acidification

Another metric of climate change is ocean acidification. The pH of the oceans is changing, becoming more acidic, which impacts the health of the fisheries and is directly related to CO2 emissions. NOAA observes: "Fundamental changes in seawater chemistry are occurring throughout the world's oceans. Since the beginning of the industrial revolution, the release of carbon dioxide (CO2) from humankind's industrial and agricultural activities has increased the amount of CO2 in the atmosphere. The ocean absorbs about a quarter of the CO2 we release into the atmosphere every year, so as atmospheric CO2 levels increase, so do the levels in the ocean."



No country owns the oceans. Maintenance of the health of the ocean in all facets is the responsibility of all nations, perhaps facilitated by the UN or a similar agreement like the Paris Climate Accords. We surely can agree that raw sewage and excess agricultural chemicals should be a global issue. There are already treaties to manage the fisheries from over-fishing.

3. Biodiversity loss

Diversity means the health of all the bio systems that human life depends upon. Approximately 25% of medicines used today are taken from or modeled on chemicals found

in plants, animals, or other living things. Preserving biodiversity often is a classic tension between immediate economic opportunities and long-term ones. There is also a classic tension between maintaining large areas undeveloped, such as the Amazon Basin, wilderness in North America, and grazing, mining and recreational use of public lands in North America.

4. Land use changes, deforestation and desertification

With the expansion of the use of oil-based agricultural chemicals for fertilizer, insecticides and fungicides, the productivity of agriculture in the U.S. and other First World countries spread worldwide. This rise in productivity has proven to be a blessing and a bane. Rising yields allowed the adoption of larger monoculture farming. Crops became commodities and farming as a local business has become more precarious, subject to the worldwide pricing and selling of crops as commodities. The continuous farming using these methods has also had an environmental effect on the land and the communities they support. Less and less food is produced locally and local populations in the Third World that used to be self-sufficient in food production are now not.

We need to consider that over a billion people today heat and cook using wood and have no access to electricity. Their use of wood causes them to deforest the land. Deforestation, overuse of fragile agricultural land and changing climates or climate disruption has all led to desertification.

5. Over-consumption of fresh drinking water

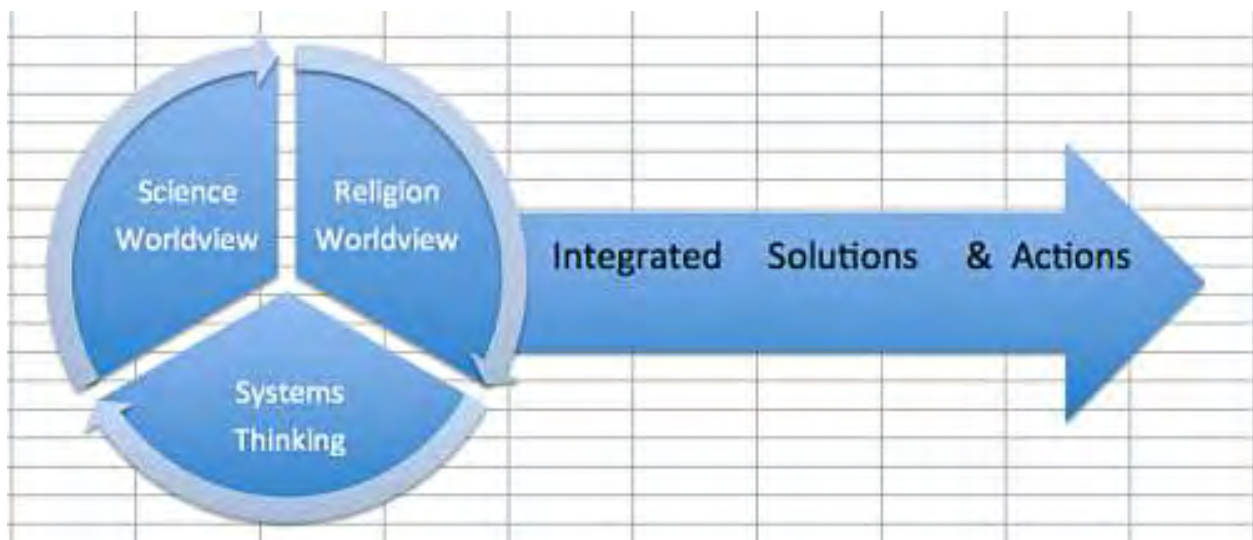
In a very insightful analysis in *Popular Science*, potable water is a key limiting factor in the overall health and economic development of many areas of the world. It is a clear planetary boundary that must be addressed. To understand this, you only need to consider the Colorado River. If Colorado and even Utah kept all or even a little more of the water flow that originates in the Rocky Mountains of Colorado, the cities of Phoenix and Los Angeles would immediately face a crisis. Water, as a resource must be available locally. Life and any economy cannot develop without a reliable source. As a resource, this may be a factor that limits development in specific areas.

6. Over-reliance on fossil fuels

Fossil fuels are what has driven the industrial economy for 150 years and in large part still does. Is this supply inexhaustible? Of course not. What then is the transition from this to solar and other renewable sources? Natural gas is already starting to replace coal for the generation of electricity. Public utilities and large publicly traded companies have a difficult time thinking and acting beyond their stock price and governments are ill-equipped to make efficient market decisions. The revolution in the energy sector needs to be driven from the ground up, or the demand side. Energy from the sun produces the magic of photosynthesis and also is the only source of energy that is sustainable. We need to change to more sustainable sources of energy, while knowing that over one billion people need to convert to using electricity. Maybe they can go directly to solar, on a local basis. We should encourage and support this.

7. Irregular population growth

While countries such as Somalia, Sudan, Ethiopia, Nigeria, India, China, and the Philippines are bursting at the seams with people, there are countries in the European Union as well as Japan that are not replacing their populations. They face a different crisis, but a crisis nonetheless. The tragedies being played out as refugees flee not just war, but economic collapse, is part of the overall issue of sustainable communities, ones that can live in a specific biosphere and location and support themselves economically. The point where demographics of a given area or region meet or exceed the above metrics will determine its ability to thrive in a sustainable manner and within the boundaries of a healthy climate.



Systems thinking aids us in thinking in new ways about complex ideas, such as climate change.

Conclusion

Science provides us with a process of understanding the physical universe. Unfolding observations and discoveries become accepted facts and worldviews. Religion and spirituality provide a moral compass of what is true and right. I believe science supports the broad outlines of climate change, but perhaps not what to do about it. Religion provides us with a moral and ethical direction, which is essential, but can't really supply us with the tools to resolve how to set boundaries that lie within the limits of the biospheres of our planet. Systems thinking can help supply these tools.

What will help us is the development of Systems Thinking. In his book, *The Necessary Revolution*, Peter M. Senge of MIT outlines this. He believes the difference between random initiatives that add up to little and a revolution that can transform society itself boils down to a shift in thinking. A sustainable world, too, will only be possible by thinking differently. While the ethics and teachings of faith leaders helps us set the direction and goal of a more sustainable world, Systems Thinking and the work of people like Senge, who also authored *The Fifth Discipline*, help us with the tools to grapple with the complex issues that climate change requires.

Briefly, according to Senge, they are:

Systems Thinking: A conceptual framework, a body of knowledge and tools that has been developed over the past 50 years, to make the full patterns (of interaction and relationships) clearer, and to help us see how to change them effectively.

Personal Mastery: The discipline of continually clarifying and deepening our personal vision, of focusing our energies, of developing patience, and of seeing reality objectively.

Mental Models: The discipline of working with mental models starts with turning our mirror inward; learning to unearth our internal pictures of the world, to bring them to the surface and hold them rigorously to scrutiny.

Building a Shared Vision: The practice of shared vision involves the skills of unearthing shared "pictures of the future" that foster genuine commitment and enrollment rather than compliance. In mastering this discipline, leaders learn how counterproductive it is to try to dictate a vision, no matter how heartfelt.

Team Learning: When teams are truly learning, not only are they producing extraordinary results, but the individual members are growing more rapidly than could have occurred otherwise.

Senge's research, writing and work deserve a longer discussion and analysis, but these kernels provide some insight into approaching the complex issues surrounding climate change.

Rob Sayre met the Unification movement in 1973, was blessed in the 1982 Madison Square Garden Blessing of 2,075 couples, and has three children and five grandchildren. He helped start Paragon House Publishers as its first CFO and went on to work at Rodale Press, publishers of Men's Health and Prevention magazines, as business manager for its \$260 million book publishing division. He and his wife, Sally West Sayre (UTS Class of 1981), are one of the founding couples of the Shehaqua Ministries in Pennsylvania, an independent ministry still thriving after 23 years.