The Wicked Problem of Climate Change

with Karl E. Peters, "Living with the Wicked Problem of Climate Change"; Paul H. Carr, "What Is Climate Change Doing to Us and for Us?"; James Clement van Pelt, "Climate Change in Context: Stress, Shock, and the Crucible of Livingkind"; Robert S. Pickart, "Climate Change at High Latitudes: An Illuminating Example"; Emily E. Austin, "Soil Carbon Transformations"; David A. Larrabee, "Climate Change and Conflicting Future Visions"; Panu Pihkala, "Eco-Anxiety, Tragedy, and Hope: Psychological and Spiritual Dimensions of Climate Change"; Carol Wayne White, "Re-Envisioning Hope: Anthropogenic Climate Change, Learned Ignorance, and Religious Naturalism"; Matthew Fox, "Climate Change, Laudato Si', *Creation Spirituality, and the Nobility of the Scientist's Vocation"; Christopher Volpe, "Art and Climate Change: Contemporary Artists Respond to Global Crisis"; Jim Rubens, "The Wicked Problem of Our Failing Social Compact"; and Peter L. Kelley, "Crossing the Divide: Lessons from Developing Wind Energy in Post-Fact America."*

LIVING WITH THE WICKED PROBLEM OF CLIMATE CHANGE

by Karl E. Peters

Abstract. Outlining the characteristics of "wicked" and "super-wicked" problems, climate change is considered as a global super-wicked problem that is primarily about the future. Being global- and future-oriented makes climate change something we have to learn to live with but cannot expect to solve. Because the Institute on Religion in an Age of Science (IRAS) is a multidisciplinary society that yokes the natural and social sciences with values, it is in a position to explore strategies for living with climate change—exemplified by the articles in this section. Finally, asking "who/what is in charge," it is suggested that in a dynamically interrelated and evolving world no one is. It is important to distinguish between good that is already created and the creative interactions that give rise to new good. In order to live with climate change, our primary orientation should be to live with the creativity that has created and continues to create our life on Planet Earth—since we are not able to know what the future holds.

Keywords: climate change; creativity; evolution; future; hope; wicked problem; Henry Nelson Wieman

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The Statement of the 2017 Summer Conference of the Institute on Religion in an Age of Science (IRAS) reads:

> Climate change is a "wicked problem" with overlapping causes and consequences in economic, ecological, ethical, and technological realms. As climate change continues to alter our planet, how can we use this monumental change as an opportunity for societal and spiritual transformation?
>
> "Uncertainty and ambiguity emerge here as resources, because they force us to confront those things we really want—not safely in some distant and contested future, but justice and self-understanding now." – Sheila Jananoff
>
> *What is the way forward?* We must confront climate change as a planetary community. It affects every institution, society, public policy, culture and ecosystem into the foreseeable future. Every possible course of action intertwines with issues of international and intra-societal social and economic justice. Climate change is a multigenerational, transnational "wicked problem" with no single, simple solution. (Conference Statement 2017)

Over the past twenty-five years IRAS has held several conferences related to our planet's environment, how humans are involved in its degradation, its rebound effects on humans, and what we might do to change our ways: 1993 on "Global Ecology and Human Destiny" (Ferré 1993; Rolston 2003); 2003 on "Ecomorality"; 2004 on "Earth's Waters in Crisis: a Scientific, Spiritual, and Moral Challenge"; 2010 on "The Energy Transition" (Christiansen 2011; Harper 2011; Irvine 2011; Laurendeau 2011; Perkins 2011; Rasmussen 2011; Rasmussen, Laurendeau, and Solomon 2011; Ravikrishna 2011); 2012 on "Saving the Future"; 2013 on "Scientific and Moral Challenges in Solving the World's Food Crisis" (Bennett 2014; Finn 2014; Raman 2014; Sanford 2014); and now in 2017 "The Wicked Problem of Climate Change: What Is It Doing to Us and for Us?"

Such conferences, as well as other work published in *Zygon* (e.g., de Witt, 2015; Hulme 2015; Moo, 2015; Stenmark 2015; Tucker 2015) are consistent with the main mission of IRAS, which is to yoke together constructively the understandings of the natural and social sciences with thinking (ancient and modern) about guiding values, in order to enhance well-being. As the most recent of a series of affirmed statements of purpose says, "IRAS cultivates a community of informed and respectful inquiry and dialogue at the intersections of science with religion, spirituality and philosophy in service of global, societal and personal well-being" (http://www.iras.org/about.html).

Because of its overall orientation, IRAS is well equipped to deal with "The Wicked Problem of Climate Change: What Is It Doing to Us and for Us?" When the idea for this conference was first proposed in the spring of 2016, some IRAS leaders were concerned about the negative moral connotations of "wicked." The concern was that we might sound too judgmental and that the conference would be too moralistic. However, as we shall see, a "wicked problem" is a problem so complex with so many

changing factors that it is impossible to solve. Some of these factors are values by which people are living, and hence there is a moral dimension. Yet, wicked problems are more complex than value questions. Rather than solving a wicked problem such as climate change, one must learn how to live with it. This means living with all the changing complexity of nature and its processes explored by the sciences, and considered in politics, philosophies, religious and spiritual orientations, social movements, arts, technologies, and psychologies.

Together, the articles in this section illustrate a diverse multi-action approach of life orientations, scientific work, arts, politics, technology, and activism. They do not exhaust all that is needed to address this topic. Also, my description of the articles below does not include all of their main ideas and themes. For these please see the individual abstracts and, of course, the entire articles.

Recognizing the dynamic complexity and the ambiguity of living with climate change, we find ourselves in a context similar to an ancient Taoist story narrated here by Huston Smith. It is

> the story of a farmer whose horse ran away. His neighbor commiserated, only to be told, "Who knows what's good or bad?" It was true, for the next day the horse returned, bringing with it a drove of wild horses it had befriended. The neighbor reappeared this time with congratulations for the windfall. He received the same response: "Who knows what is good or bad?" Again this proved true, for the next day the farmer's son tried to mount one of the wild horses and fell, breaking his leg. More commiserations from the neighbor, which elicited the question: "Who knows what is good or bad?" And for the fourth time the farmer's view prevailed, for the following day soldiers came by commandeering for the army, and the son was exempted because of his injury. (Smith 1991, 215–16; for a contemporary application see Allan 2015)

Wicked and Super-Wicked Problems

The idea of "wicked problem" was first advanced in December 1969 at a presentation to the Panel on Policy Sciences at the American Association for the Advancement of Science in Boston. With revisions it was published four years later (Rittel and Webber 1973a, 1973b). In contrast to "tame" problems, which can be clearly defined with proposed and testable possible solutions, wicked problems have the following ten overlapping characteristics: (1) each wicked problem has no definitive formulation; (2) there is no way of determining when a solution has been found; (3) solutions are not true or false but rather good or bad; (4) there is no immediate or ultimate test of a solution because any possible solution modifies and changes the problem; (5) every solution is "one-shot" because there is no opportunity to learn by trial and error; (6) there is no exhaustively describable set of potential solutions; (7) each wicked problem is unique; (8) each can be

considered a symptom of another problem; (9) discrepancies can be explained in numerous ways and the choice of explanation determines the nature of the resolution; (10) a planner has no right to be wrong—"In the world of planning and wicked problems . . . the aim is not to find the truth, but to improve some characteristics of the world where people live. Planners are liable for the consequences of the actions they generate; the effects can matter a great deal to those people that are touched by those actions" (Rittell and Webber 1973b, 144).

In Rittell and Webber's analysis planners deal primarily with social problems. When one expands planning to include environmental problems as related to social matters, one has what Kelly Levin and others call a "super wicked problem." In addition to the ten characteristics identified by Rittell and Webber, a super wicked problem has four more characteristics: (1) time is running out, (2) there is no central authority, (3) those seeking to end the problem are also causing it, and (4) there is what is called "hyperbolic discounting." Let's develop these further.

Time is running out. In 2006 James Hansen and colleagues suggested the following challenge: "If humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted, CO_2 will need to be reduced from its current 385 ppm [parts per million] to at most 350 ppm" (Lemonick 2008). In 2007 Bill McKibben founded the organization "350" to advocate for the elimination of fossil fuels in favor of clean energy (www.350.org). Yet, by 2016, the CO_2 level was 407.22 ppm (https://climate.nasa.gov/vital-signs/carbon-dioxide/).

Increasing levels of CO_2 trigger a set of positive feedback processes and a complex cascade of effects: "As ice retreats in a warming world, more dark surface is exposed to absorb solar radiation, which makes the world even warmer, melting even more of the ice" (Lemonick 2008). Paul Carr expands on the same point: "A darker Arctic is boosting global warming. From 1979, less reflecting ice, more absorbing water made the North Pole warm twice as fast as the rest of the Earth. Carbon dioxide, methane, nitrous oxide, and viruses are being released as the frozen tundra melts" (Carr 2018 [this issue], 446). He discusses five major results: first rising sea levels from thermal expansion and from melting mountain glaciers in Greenland and Antarctica; second, more acidic oceans CO_2 absorption, threatening the bottom of the food chain; third, increasing weather extremes with wet areas becoming wetter due to floods and snow because the atmosphere holds more water vapor at higher temperatures, and dry areas becoming drier with droughts and wildfires; fourth, more climate refugees; fifth, in the north more diseases (Carr 2018).

Why this is happening is probably related to the next three factors of super-wicked problems. The second factor is that there is *no central authority*. Public decision-making authorities do not have final control. Every individual, community, and nation makes decisions that affect the

rate of climate change. The third factor is that *those seeking to end the problem are also causing it*. Even people who are trying to reduce climate change contribute to climate change. For example, driving or flying to climate change meetings adds to greenhouse emissions. The fourth factor is called *hyperbolic discounting*—giving more importance to the present than is warranted and less value to the future, thereby discounting it. Most of us, including the most significant decision makers, have evolved to seriously consider only short-term consequences of our actions. "This characteristic is especially pernicious because although it is known that negative effects will occur, . . . the precise consequences are never certain for any one individual. Such features, which capture climate change, seem to provide hyperbolic discounters with some justification, however irrational, for not acting" (Levin et al. 2010, 7; see also Levin et al. 2012).

Climate Change—A Global Super-Wicked Problem

The situation is even worse than that described by wicked and super-wicked problems. What we have with climate change is a *global super-wicked problem*. In the news we read mostly about local climate change events. This is not surprising because we are most concerned about what is happening, or will happen, to us and those close to us. However, let's expand our horizon of interest and concern to what is happening around the world as well as in the United States. In 2016 *The New York Times* ran an interactive video/print series on eight places that were experiencing enough change to lead to human migration ("Carbon's Casualties" 2016).

(1) The Isle de Jean Charles is a town in southeastern Louisiana inhabited by descendants of Native Americans. The "earth is now dying, drowning in salt and sinking into the sea." Houses are mildewed and rusted from the salt water, and the road to the mainland where many work often is flooded. Since 1955, when Isle de Jean Charles consisted of over 22,000 acres, it has lost about 98% of its land. In January 2016 a $48 million federal grant was allocated to resettle its residents. Some have had enough and want to leave. Others don't. They don't know whether their culture and ways of living will be preserved in the new settlement (Davenport, Robertson, and Haner 2016). As of December 2017, a new settlement site had been identified and is being purchased (Roberts 2017).

(2) The island nation of Kiribati is "a collection of 33 coral atolls and reef islands scattered across a swath of the Pacific Ocean about twice the size of Alaska." It lies no higher than six feet above sea level. Its government is making plans in light of the island's demise and has purchased 6,000 acres in Fiji, 1,000 miles away. Yet, some are resisting. They don't see how they can obtain the skills needed to

survive overseas. And some Christians on the islands put more faith in God's protection than in climate models. They say that they are not going to sink because only God decides the fate of any country (Ives and Haner 2016).

Other islands are at risk as well. According to the Intergovernmental Panel on Climate Change, many small island nations are only a few meters above present sea level. With further sea-level rise they face the threat of permanent inundation. Among the most vulnerable are the Marshall Islands, Kiribati, Tuvalu, Tonga, the Federated States of Micronesia, and the Cook Islands (in the Pacific Ocean); Antigua and Nevis (in the Caribbean Sea); and the Maldives (in the Indian Ocean) (http://www.ipcc.ch/ipccreports/tar/wg2/index.php?idp=671).

At the IRAS conference, one of these islands, Tuvalu, was the subject of a sing-along at the beginning of a plenary session. Here's the chorus: "Tuvalu, Tuvalu, tiny islands in the ocean blue/ Tuvalu, Tuvalu, you live or die by what we do" (Manley 2007; see the appendix for the entire song).

(3) In Bolivia, Lake Poopó was once the country's second-largest lake, on a plateau 12,140 feet above sea level. Now it is a dry, salty expanse. After decades of water diversion and cyclical El Niño droughts, the fish died and the birds that fed on the fish left. Many of the Uru-Murato people, who have lived off its waters for generations, also left, "joining a new global march of refugees fleeing not war or persecution, but climate change" (Casey and Haner 2016).

(4) In China the Tengger Desert is growing. It lies on the southern edge of the massive Gobi Desert, not far from major cities like Beijing. Nearly 20 percent of China is desert, and drought across the northern region is getting worse. One recent estimate said China had 21,000 square miles more desert than in 1975. The area of expanded desert is about the combined size of New Hampshire, Massachusetts, and Connecticut. As the Tengger expands, it is merging with two other deserts to form a vast sea of sand that could become uninhabitable (Haner et al. 2016).

(5) In 2016 China had 329,000 "ecological migrants," people who were relocated by the government to 161 new villages that were hastily built. They came from places that were distressed by climate change and also industrialization, poor policies, and human activity. These migrants were the fifth wave in an environmental and poverty alleviation program that has resettled 1.14 million residents of the Ningxia Hui Autonomous Region, which is a territory of dunes, mosques, and camels along the ancient Silk Road (Wong and Haner 2016).

(6) With its proximity to the Arctic, Alaska is warming about twice as fast as the rest of the United States. At least thirty-one Alaskan towns and villages have been named as places at imminent risk of destruction. The village of Shaktoolik is one of the top four. It is a village of 250 people, living on a narrow spit of sand between the Tagoomenik River and the Bering Sea. It faces an imminent threat from increased flooding and erosion. Other coastal villages such as Shishmaref and Kivalina have voted to relocate when and if they can find a suitable site and the money to do so. However, Shaktoolik has voted to "stay and defend," at least for the time being (Goode and Haner 2016a).

(7) According to the International Organization for Migration, in 2016 more than 311,000 refugees passed through Agadez in Niger to either Algeria or Libya. Some went on to Europe. The largest numbers are from Niger and its West African neighbors. They migrate because of heat, hunger, and war. Rains have become more unpredictable; it is measurably hotter; droughts are more frequent and fierce. It is impossible to grow enough food on their land (Sengupta and Haner 2016).

(8) In Kaktovik, Alaska, when fall comes, polar bears are everywhere. As many as eighty at a time roam around this village of 241 inhabitants. They doze on the sand, roughhouse in the shallows, and stroll down the beach with their cubs. The bears attract hundreds of tourists who travel long distances to see them. At night they come into town, leaving reluctantly only when chased by the "polar bear patrol" with firecracker shells and spotlights. Many bears look healthy and plump during fall when their visits overlap the Inupiat village's whaling season. However, they are "climate refugees, on land because the sea ice they rely on for hunting seals is receding" (Goode and Haner 2016b).

Wicked Problems Are Value Problems

If we go back to the work of Rittel and Webber, we can see that in contrast to problems dealt with in the natural sciences, wicked problems are future-oriented. They are concerned with planning and implementing political and social systems. Such planning is not concerned with what has already happened or what continually happens—but with what can and should happen. "A great many barriers keep us from perfecting [an idealized] planning/governing system. . . . This is partly because the classical paradigm of science and engineering—the paradigm that has underlain modern professionalism—is not applicable to the problems of open societal systems" (Rittel and Webber 1973b, 135).

In open systems, which allow for both internal interactions and also interactions with the wider social and natural environments, we cannot forecast the future in any detail. For example, we can't even know what will happen in our own future during the next 24 hours. We may begin our day with a clear set of objectives and a schedule for accomplishing these objectives, for example working on this article, fixing a chair, practicing the guitar. Then the phone rings—can I come over to my son's house and stay to play with one of my granddaughters while the other one is taken to the doctor? She has fallen and has seriously injured her leg, maybe a broken bone. Each day is a complex flow of unforeseen events dependent on any number of people interacting with each other as each tries to achieve what he or she wishes.

Multiply this millions, even billions, of times. Each organism is living its own life, always in relationship to others. In their interactions each causes others to change. The same is true of people interacting in communities, in nations, between nations. As I have suggested elsewhere, living inter-relationally into the future is like a "dance with no one leading" (Peters 2002, 45–51; 2005, 241–42).

This is a key feature of the wicked problem of climate change. We humans are trying to portray the future we envision, the kind of world we would like to have. Yet, when everything is constantly and sometimes dramatically changing, it is difficult to decide how we should act, what kind of life we should we live, and what kind of persons we should try to be. Underlying these concerns is an important question about our motivation: are we willing to change? Are we willing to try to adapt and adjust continually as things change around us? Are we willing to be open to living "experimental lives"? These are value questions. If we consider them seriously, then we can see why social scientists and others involved in political–social planning are up against what can be called "wicked" problems.

The articles in this section of the June 2018 issue of *Zygon* are all oriented toward the future, even if that future of Planet Earth and its changing climate can't be fully known or controlled. Paul Carr (2018, this issue) gives an overview of how we have affected Earth's climate and how it in return is negatively affecting us humans—even as it calls us to new possibilities for living. Robert Pickart (2018, this issue) and Emily Austin (2018, this issue) are scientifically focused on aspects of what we are learning, including some surprises. Pickart, a physical oceanographer, reports the unexpected discovery of a massive phytoplankton growth beneath the ice in the Western Artic Ocean (Arrigo et al., 2012, 1408). Austin, as a soil chemist, is investigating how interactions with carbon in the soil may both reduce global warming and help solve the world's food problem. Paul Carr (2018, this issue) and Peter Kelley (2018, this issue) bring to our attention new energy-producing technologies such as thorium nuclear reactors and

wind turbines. Jim Rubens (2018, this issue) calls for a massive research effort to expand our scientific knowledge and capability, similar to the Manhattan Project during World War II that created nuclear fission. Even though the complexity of climate change is very, very wicked, we can continue to make scientific discoveries and develop new technologies that may mitigate its effects.

Other authors attempt to paint a big picture of the future of humanity on Planet Earth. James Clement van Pelt (2018, this issue) gives a sobering word picture that portrays the current mega-threat that will likely lead to a massive and far-reaching human transformation through chaos and crucible toward culmination in a new kind of civilization. David Larrabee (2018, this issue) recognizes the importance of how we envision the future, because our visions of the future affect our decision making by influencing our sense of how things "ought to be." He explores and critiques the roles of two quite different future visions—which he calls secular "eschatologies"—as they play out in economics, technology, and the preservation of nature. Panu Pihkala (2018, this issue) turns us inward to our emotions and moods, and he addresses the problem of "eco-anxiety" that results from direct and indirect psychological and existential impacts of climate change. He argues that as we look to the future we need to frame our climate change narratives to emphasize hope even in the midst of tragedy.

Hope was a major concern at the conference. In considering the global, super-wicked problem of climate change and its often tragic outcomes, how can humans avoid becoming so depressed and demoralized that we do nothing? Carol Wayne White (2018, this issue) offers a religious response to climate change in terms of a naturalistic worldview. She associates the concept of hope with the beauty of ignorance and with knowing ourselves differently as natural processes in relationship with other forms of evolving nature. Our hope anticipates what possibilities may occur when we humans enact our evolutionary capacities as relational organisms that can love and work to promote the betterment of nature. Matthew Fox also presents a worldview which complements that of White. The founder of "creation spirituality," Fox (2018, this issue) presents the four paths of creation spirituality as exemplified in Pope Francis's *Laudato Si'*—the *via positiva*, *via negativa*, *via creativa*, and *via transformativa*. He also suggests archetypes from world religions that evoke the sacredness of the Earth and considers the evils of denial, hypocrisy, apathy, greed, and despair.

More is needed than stating the ideas and values of these worldviews. They should be embodied in arts, politics, and social actions. At the conference, aspects of creation spirituality were presented in sacred dancing by Ellen Kennedy. Guitarists led brief opening sing-alongs at the beginning of plenary sessions. Chapel speaker Mary Westfall led a series of six morning chapel services on "Mastery, Mystery and Mindfulness: The Task and Art of Thriving in a Broken and Beautiful World."

She drew on the knowledge of science, the evocative imagery of poets, mystics, and musicians, and the richness of our own experience, to help reimagine a way of being that honors Earth, engenders hope, and illumines the path to a sustainable, just, and holy future. During Chapel, she introduced the song "The Tide Is Rising and So Are We," by Rabbi Shoshana Meira Friedman and Yotam Schachter. This was also sung before some plenaries and for some it became the theme song of the conference (https://www.youtube.com/watch?v=oq7JxwBFJxM). Each day, after chapel and the morning plenary presentations, ongoing small groups met to discuss ideas that had been presented and develop questions for further discussion. Spontaneous discussions emerged during meals and on the porch. There were late evening movies: "Before the Flood" (https://www.beforetheflood.com), "Water World" (https://www.youtube.com/watch?v=YrTgtnN_y7U), "From the Ashes" (https://www.fromtheashesfilm.com), and "How to Let Go of the World and Love All the Things Climate Can't Change" (http://www.howtoletgomovie.com).

The arts can bring out human emotions as motivators to action. In this section of *Zygon*, artist Christopher Volpe gives an abbreviated survey of contemporary artistic responses to climate change (Volpe 2018, this issue). These responses in varied mediums take diverse forms from grief and resignation to resistance, hope, and even joy. Also embodying the values of these responses offers ways of engaging others so that they are willing to try new technologies. Jim Rubens (2018, this issue) calls our attention to the erosion of the social contract in contemporary society; this is another wicked problem. For various reasons individuals in the United States no longer feel a sense of citizen responsibility for the entire social organism. Rubens suggests that we need a reawakening in our political and social life—beginning with our everyday personal social life—of transcendental values such as good, truth, beauty, justice, love, compassion, and creativity. Peter Kelley (2018, this issue) gives many illustrations that show how successful wind project developers engage in deep listening without judgment, seek shared values, speak with language that includes everyone instead of excluding those who disagree (the other), and make personal contacts often with those who hold opposing views. Developing relationships is a way, Kelley suggests, to cross the divide of disagreement.

Who/What Is in Charge?

In addressing the wicked problem of climate change and the future of Earth and its humanity, we also should seriously consider an underlying issue, "who or what is in charge?" To some extent this is a scientific question about how things do happen. Humans today also have a part to play in determining how things happen and can happen. But reality is much larger than humans. Because of the extreme complexity of climate change as a

wicked problem on a global scale, can we really think we are in charge of the future? Of course, we can do our best to address the challenges we face. However, as we develop possible positive courses of action, new challenges will constantly come up.

This requires an evolutionary framework, which most IRAS conferees well understand. On Earth, life, human life, and human culture evolve together in continuous interaction. Everything is in dynamic relationships. It is as if we are in a global dance and no one is leading. It is like improvisational music, such as contemporary jazz (Peters 2002, 45–51, 134–35). This is how evolution works: in a two-aspect process new possibilities emerge through one set of interactions, and some of these possibilities are selected to continue in another set of interactions. There is a decoupling of the processes that create new variations and the processes that determine what is selected to continue (Peters 2002, 46–47). And this is ongoing so that things are constantly changing. As the Buddha said, everything is transient. Or as John Muir has put it: "Nature is ever at work building and pulling down, creating and destroying, keeping everything whirling and flowing, allowing no rest but in rhythmical motion, chasing everything in endless song out of one beautiful form into another" (Danner 1973, 58). Always beautiful? Well, if one is open to accepting all things, to loving all things, then yes, "one beautiful form into another."

So what/who is in charge on Planet Earth? No one, no thing. Nothing. Instead, everything contributes something—every atom, molecule, cell, life form, plant, animal, human, human cultures. Yet, none of these, including human beings, even humans working together on a global scale—if ever we can—is in control. And if we must give a term to label what is happening, we might use the word "creativity." Yet, not even creativity is in control if "control" means being able to create a plan or possible course of action and then follow it to fruition. A significant feature of creativity is spontaneity. Not control but spontaneity—and surprise.

Another way of considering what I've just said is to take up Henry Nelson Wieman's distinction between created and creative good (Wieman 1946, 54–58). Created goods are either good in and of themselves (intrinsic good) or good because they lead to the realization of other good (instrumentally good). Human beings are created goods in Wieman's terms. Mutually supportive human communities are created goods. Ecosystems are created goods. Even Planet Earth is a created good. Those who want to save a species are trying to save a created good. Those who are concerned about the future of humanity are concerned about a created good.

More important, as we look toward the future and the wicked problem of climate change, any suggestion we make about how to cope, any vision as to how to move ahead, any political, economic, or technological proposed solution—any idea about how to handle the future—is a created good.

Yet, there is something more important than anything that has been already created, or anything that can be imagined, whether it be intrinsic or instrumental. What is of greater value is the creativity that has produced these kinds of good. Wieman calls it *The Source of Human Good* (1946). This source is creativity as embodied in interactions among humans, between humans and the rest of the natural world, and in the natural world itself. Creative interaction can take place among already created goods, but in a way that allows for the emergence of new good rather than maintaining created goods in their existing forms (Peters 1993, 205–07). Because the creative process is the continuing source of all human good, it is according to Wieman the ultimate good—the sacred. It has been given many names such as Brahman, Tao, Holy Spirit.

Nevertheless, we still need to construct plans and strategies to guide us in addressing the global super-wicked problem of climate change. Such constructing is itself one aspect of creativity, but the results are not final. They are proposals for the future; they are new variations in how to engage ourselves and our world. And like all variations, they are subject to testing in interactions with what has already been created and other possible new variations. So, it's simply not possible to think of anyone or any one thing as being in charge. In facing the wicked problem of climate change we can hope that ongoing creativity will bring about new life forms, new ecosystems, new human ways of living—new created good. Whether the future of new created good, newly evolved forms of life and culture, might be better than what we have now, we cannot know. Perhaps, following Wieman and other forms of thinking that stress the ultimate importance of that which creates the world and not the world as already created, we can hope for new good to emerge. However, like the Taoist farmer, in an ever changing world we might simply have to recognize, "who knows what's good or bad?" The Taoist farmer seems content with simply living as things come. Or, like Sheila Janoff we can expect that

> Uncertainty and ambiguity emerge here as resources, because they force us to confront those things we really want—not safely in some distant and contested future, but justice and self-understanding now.

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is finished, I think we had fun. Also, much appreciation to Marjorie H. Davis and Laura Mazza-Dixon for their careful proofreading that made the article more readable. Finally, I cannot express in words my feelings for IRAS. Since 1972, it has been the organizational home for my research and writing on matters of science and religion. And over the years it has become a community of deep friendships that is one of the great joys of my life.

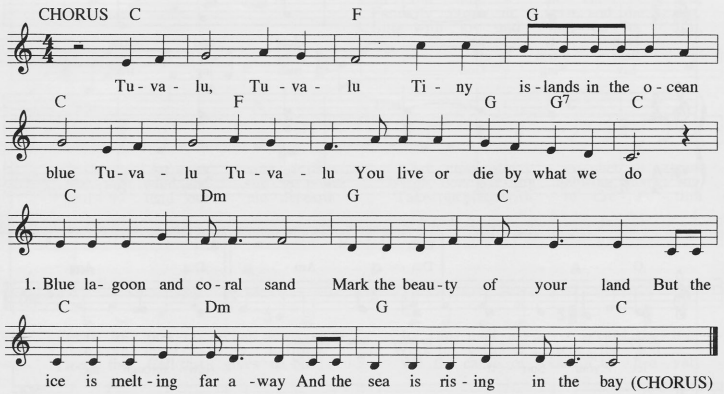
Appendix

Tuvalu

From a National Public Radio broadcast June 12, 2007
"Tuvalu mo te Atua" (Tuvalu Motto) Tuvalu for the Almighty
TUVALU means "Eight (islands) standing together

Words and music by Jim Manley

"Tuvalu mo te Atua"



2. Cyclones blowing to your grief
Coral dying on the reef
Fish no longer come in swarms
As the ocean water warms

Some still fight with tanks and guns
But a new war has begun
This is how the world attacks
With car exhaust and chimney stacks CHORUS

3. Hear the island people say
Join us in more gentle ways
Treat all life with precious worth
Live more simply on the earth

Atolls flood as rising seas
Swamp your homes and breadfruit trees
Time to leave, you cannot stay
Where to go, you cannot say. CHORUS

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