Christians and Climate Change: A Social Framework of Analysis

Janel Curry

Scholars have studied the relationship between religion and environmental attitudes over the past forty years and have found a great deal of complexity. Presented here is a framework for understanding the range of Christian responses to the current debate over global climate change. The three major factors identified that influence attitudes toward nature and approaches to this environmental problem include (1) eschatology; (2) levels of integration in theological constructs of the relationship among humans, nature, and God; and (3) views on responsibility for social change. While this group of factors influences the relationship between Christian traditions and responses to climate change, no straightforward causal relationship between any one factor and attitude can be found. A more nuanced understanding of the range and source of Christian attitudes toward nature and climate change can aid in political and theological debate over this important issue.

The relationship between religion and environmental attitudes has been studied over the past forty years primarily in response to Lynn White’s thesis that a Judeo-Christian belief system has a negative impact on attitudes and actions toward the environment. Yet research has continued to find, generally speaking, weak relationships between Christianity and particular environmental beliefs/behaviors and a great deal of complexity in these relationships.

Let me share a few quotes from my own research to illustrate the complexity and range of attitudes. These quotes, along with others in this article, come from my published empirical research which has involved the systematic collection of data on attitudes of different Christian groups toward nature. The choice of groups used to illustrate my points here is shaped by my previous research.

Baptist Seminarian

… but the land for us is not as important … We are just so far away from the concept (living where our grandparents have lived), and I think it has just lost its importance. And it’s right for it to be that way.

Farmer (Community of Christ)

Even though we have ownership of land … in the end it’s God’s … it bothers me sometimes to have all these lines of things put into the earth. You have water lines, you have electricity lines … I don’t like them all up above you either, but in Des Moines … it’s just paved over with concrete. And it’ll never

Janel Curry is dean for research and scholarship and professor of geography at Calvin College. She received her BA from Bethel College in St. Paul, MN, and her PhD in geography from the University of Minnesota. She has published in the areas of societal structures and natural resource management, religious worldviews and environmental attitudes, and rural geography. Curry’s most recent book is Community and Land: Community, Ecology, and the Public Interest, with Steve McGuire. She has two daughters who are wondering where her next sabbatical will take them (the last one was New Zealand!).
again see the light of day. I groan. I feel the earth groan. I groan with it, for being covered so ... and you know that it’ll never be free again.4

How do we interpret this range of viewpoints? Scholars and the general public sense a link between religious perspectives and environmental attitudes, but the connection is not clearly understood. For example, environmentalists, scientists, and politicians recognize that religious communities need to be included in their attempts to meet the major environmental challenge of this century, global climate change.

My proposed framework encompasses three major factors: eschatology, integration, and responsibility.

I present here a framework for understanding the range of Christian responses to environmental problems, with special attention to how these responses play out in the current debate surrounding global climate change.5 Thomas Ackerman presented a general categorization of Christian responses to climate change in a recent issue of Perspectives on Science and Christian Faith, but the major focus of his article was evidence of climate change.6 My goal is to contribute to the scholarly discussions surrounding the variety of typologies proposed for understanding religious, and particularly Christian, views of nature and environmental problems. As Downs and Weigert, who developed one such typology from Papal and Episcopal documents, stated, future research included the “need for additional typologies as tools, especially religious environmental typologies.”7 Their typology was one largely influenced by ecological conceptual categories. In contrast, McCammack focused on evangelical Christians and used a typology based on political categories, an approach that lacked both nuance and theological complexity.8 While both of these former typologies focus on a narrow segment of the Christian population, secular typologies also exist. Perhaps the best of these is the one developed by Dryzek in The Politics of the Earth: Environmental Discourses.9 However, Dryzek’s typology does not include theological understanding in its categorization.

My proposed framework is informed by more than twenty years of empirical research that has attempted to do justice to theological traditions across the Christian spectrum, while also interacting with the general literature on religion and environmental attitudes.10 My approach is similar to the one Jared Diamond used in his book Collapse.11 Like him, I present a group of factors that influence the relationship between Christian traditions and attitudes toward nature, but likewise argue that no straightforward causal relationship exists between any one factor and the attitudes we see. Rather, a varying combination of these factors within any one tradition influences both attitudes toward nature and attitudes toward policy proposals. The recent works of Shellenberger and Nordhaus criticize the contemporary environmental movement for its narrow special interest approach to environmental problems.12 This same characteristic of the environmental movement makes the Christian community uncomfortable with the environmental movement, yet many Christians are sympathetic to environmental concerns. Such seeming contradictions call for a more complex framework to understand the Christian community. The hope is that this framework will illuminate the complexity of the relationship between religion and environmental attitudes and lay the groundwork for more dialogue among groups that often find themselves on opposite ends of the political spectrum, for the end purpose of addressing environmental and climate change.

My proposed framework encompasses three major factors. The first factor is eschatology, or beliefs about the future. Where is history going? The second factor is integration. How do traditions theologically construct the relationship among humans, nature, and God? The third factor is responsibility. Who or what is responsible for social change? And how is social change to be accomplished? This framework is not definitive or static. My empirical research and the literature give evidence of a great deal of complexity. However, this proposed framework reflects the key components of worldviews: (1) How do we conceptually understand our place in the world? (2) How is the future going to unfold? and (3) What are the appropriate tools or approaches for addressing and understanding social change in the journey?
Eschatology (Views of the Future)

Christian eschatologies, or views of the future, are one of the strongest factors that affect attitudes toward the environment. Conservative Christian eschatologies are grounded in common theological commitments. These include belief (1) in the authority of the Hebrew and Christian Scriptures; (2) in God’s creation of the universe; (3) that humans and nature fell from perfection with the sin of Adam and Eve; (4) that the restoration or redemption of humankind comes through the death and resurrection of Jesus Christ; and (5) that God’s plan and promises will be fulfilled with the return of Christ. This can be summarized with the sequential story: Creation, Fall, Redemption, Consummation. In contrast, liberal Christian traditions have a more evolutionary or progressive view of history. Society is moved forward through the portrayal of “what could be,” held before society as a vision or possibility. Conservative and liberal Christians both have eschatologies, just different stories for how the future will unfold. An exploration of three different groups will illustrate a range of eschatologies, but also add complexity to the factor.

A Calvinist, Reformed eschatology sees continuity between this present material existence and some future perfected state that will be established when Christ returns. As one Dutch Calvinist farmer stated,

We’ve begun our eternal life … the opening chapter … The whole thing of stewardship is certainly part of now and/or a part of eternity. The comparison between the seed and the full-grown tree and our body and our resurrection body—there’s a connection, but still, you wouldn’t believe that a huge oak tree could come from a little tiny acorn. And I don’t think you can even begin to fathom what the life hereafter will be, if you think of our cells, now, as the seed.

For this farmer, a presumed relationship exists between the present and future material existence of the earth. In this schema, Christ’s death, resurrection, and future return are seen as the hope for both humans and the earth. Calvinism sees in the present era the seeds of the flourishing that will come when Christ returns. The present time involves living in an in-between state where humans can be persistent at bringing restoration where possible because of the ultimate hope of its being completed when Christ returns. Thus this present earth is not discardable, because a continuity exists between knowledge and the physicality of the present and future earth.

Quakers are what are called post-millennialists. Post-millennialists generally believe that the prophecies in the Bible were fulfilled during Roman times and that the trend of history is toward the gradual improvement of society. Quakers believe in an individual’s experience of the Inner Light as an unerring guide for his or her speech and action. This Inner Light has led Quakers to be activists against injustice. They believe this Inner Light is present in all, thus reflecting a belief in the essential goodness of humans. And since humans are seen as basically good, Quakers believe that some level of perfection of society is possible. In addition, the universality of their concept of grace means that this perfection can be extended to society and the world as a whole, leading to an intense desire to try to improve society.

The Quaker worldview is one of great optimism, activism, and belief in the forward march of progress of society. Quakers perceive the here and now of the world as the main arena of God’s redemptive activity, and humankind as the primary agent of establishing God’s kingdom on earth. Thus they have been very active in working for peace and justice through government agencies and international organizations. They also put a tremendous amount of hope in education as a force in social change, as an instrument of continual societal improvement.

Dispensational theology and eschatology are often used to characterize Christianity as a whole. In fact, it is this eschatology that exhibits the strongest empirical connection to negative attitudes toward the environment. Dispensationalists, often referred to as Christian fundamentalists, teach that believers will be removed from this physical earth at the time of the return of Christ. They look for signs, such as increasing violence and natural disasters, to mark the coming of Christ. Under dispensationalism, the earth is seen as a backdrop for the actions of God in saving humans, rather than as a central concern. Two quotes by dispensational seminarians show this perceived lack of continuity between the present earth and the future earth after
the return of Christ, and the placement of nature on the periphery of their worldviews:

The other thing is that this world is not the end. I’m not saying that we shouldn’t try to get too comfortable on this land, and I am not trying to sound like we can disregard our stewardship, but ultimately it is going to be God who is going to redeem, and we shouldn’t look to make this world our end or eternal home.23

(Our) relationship to God is what makes the land important. It’s not the land that is important in and of itself.24

Is this dispensational eschatology the key to all understanding on the relationship between Christianity and environmental attitudes? As always, relationships are more complex than they appear on the surface. Dispensational denominations, like the General Association of Regular Baptists, are culturally very American. From its inception, this denomination has had a strong anti-communist/socialist ideology.25 This tradition fits well into American individualistic ideology. It puts an emphasis on Christ as the personal savior of individual humans with the earth serving as a backdrop in this salvation story. Individuals—not communities—are the center of its religious story, and the earth is the stage on which these individual lives are played, rather than something of eternal, central concern.

Dispensationalism conforms generally to what Dunlap and Van Liere have defined as the Dominant Social Paradigm.26 This American worldview includes being utilitarian in its views of nature, supporting individual property rights, being against government interference with individual rights, and emphasizing the market. So, does dispensationalism reflect a religious worldview or a more “purely” American cultural worldview? Let me give an example to illustrate the interplay between economics and eschatology among conservative American Christian groups.

First I will describe the position of two conservative Christian groups that have been active in countering concerns over global climate change, the Interfaith Stewardship Alliance (ISA) and the Acton Institute for the Study of Religion and Liberty. Both of these groups are supporters and signers of the Cornwall Declaration which is a statement on Judeo-Christian heritage and environmental stewardship. They fall into the category that Ackerman labels “denialists.”27 Next I will present critiques of these groups by two conservative evangelical Christians who are part of what is called the Creation-Care Community, Ron Sider of the Evangelical Environmental Network and Dean Ohlman, scriptwriter and TV producer for the Radio Bible Class Ministries’ Day of Discovery broadcast.28 Finally, I will describe the worldview position of the Creation-Care movement, in comparison to the ISA and the Acton Institute.29

The worldview of the ISA and the Acton Institute includes the belief that increased technological power and the miracle of the free market will lead the world toward increased health and wealth, toward perfection. They believe that larger homes, greater consumption, and general material prosperity are a reflection of this progress. In addition, those with this perspective believe that the earth cannot be hurt, God’s design of creation has positive and negative feedback mechanisms that minimize or quickly repair environmental damage, so increased consumption does not hurt the earth. Finally, this progressive view of history holds that Christians with a biblical worldview will rise to power and compassionately use free-market capitalism to create an earth fit for Christ. Such progress will result in Christ’s return.

Sider and Ohlman argue that the ISA and the Acton Institute are committed to a free-market eschatology, rather than a biblical eschatology. Therefore, their views are underlain by the assumption that the free-market system can solve all economic and social ills, and thus they show an undying faith in amoral capitalism and the unfettered market. Furthermore, they fail to see the prosperity that the ISA and the Acton Institute claim is present. Rather, Sider and Ohlman point to the suffering that exists in much of the world today. While they are critical of the ISA and the Acton Institute for their theological perspectives, Finn argues that they actually reflect a particular economic school of thought characterized by the methodological individualism of the Austrian school of economics. The emphasis is on the extension of economic analysis to the broad range of human choices, which results in the giving of methodological authority to economics over against theology.30 Such an economic perspective resonates with American pragmatism and individualism.
The Creation-Care community identifies itself as in the mainstream of evangelicalism. Their perspective has a countercultural edge in that they believe that Christians should be “out of sync” with the predominant materialism of our culture. For example, the Evangelical Environmental Network’s “What would Jesus drive?” campaign questioned both consumption and affluence. Claiming that theirs is the predominant mainstream evangelical view, the Creation-Care community sees Christ as the agent in establishing a theocracy, rather than any action that humans or the market may take. While waiting for Christ’s return, they say that Christians are to be wise and compassionate stewards of God’s creation, living out the Gospel before the watching world and preparing for their future roles in the coming Kingdom.

In these examples, Christian eschatologies, or views of the future, impact (1) whether groups think this world is worth saving, or whether its destruction is a sign of Christ’s return and the removal of Christians; (2) whether groups believe that humans can destroy the earth—and if they can, what mechanism best achieves a better future; and (3) whether continuity exists between the present material world and some future existence.

The range of views described here, along with their debates with each other, illustrate how Christian eschatologies interact with and are shaped by American cultural assumptions and in particular by economic free-market eschatologies. Is eschatology the smoking gun when it comes to explaining the responses of different Christian traditions to the problem of global climate change? It is certainly a significant factor, but not the entire story.

**Human/Nature/God Integration**

The second factor affecting attitudes toward nature is integration. How do traditions theologically construct the relationship among humans, nature, and God? Let me illustrate this factor through two stories. While collecting ethnographic material among the Houma tribe of southern Louisiana, I encountered an elderly Houma woman who recalled that when she was young, “woodsmen”—dangerous mythological creatures—lived and ate in trees. She remembered one instance when the men had gone hunting and the “woodsmen” came, threatening the women. The women lit tobacco to keep the “woodsmen” away. I asked the elderly Houma woman whether these “woodsmen” still existed. She gave me a puzzled look. She said simply that the forest had disappeared. The cypress forest has died through the process of building channels for the movement of oil rigs so the habitat for woodsmen had been destroyed. As the environment changed, mythology and spirituality changed as well.

Such highly integrative worldviews are not limited to traditional societies. While doing research on farming in Iowa, a farmer told me that he had noticed that the birds disappeared during the farm depression of the 1980s. He had shared this observation with his brother-in-law who had noticed the same pattern. I asked this farmer whether this was the result of land use pattern changes, and he quickly clarified that it was the result of the “state of humanity.” The groaning of humanity had somehow affected the earth.

Both these stories illustrate worldviews with high levels of integration in which the realities of God, nature, and humanity are closely intertwined. Highly integrative views, such as those held by those from the Reformed tradition, see God as continually sustaining both people and nature and view humans and nature together as part of God’s plan for Shalom. Some aspects of the Catholic tradition also express more integrative views of God, nature, and society. For example, Andrew Greeley has shown that more gracious images of God, identified with Catholic perspectives, lead to greater levels of environment care. The National Catholic Rural Life Conference illustrates this high level of integration in its mission, which draws on a spiritual tradition that brings together the church, care of community, and care of creation. Thus the organization sees spirituality, community, ecology, and economy as all part of a larger whole and through this, sees issues of trade, poverty, integrity of creation, and democratic decision-making as connected.

Theological traditions that do not have highly integrative views of God, humans, and nature conform more closely to the Western intellectual tradition, which tends to be very dualistic—humans apart from nature—and even the word “nature” implies something separate from humans.
ern cultures struggle to find words that can express an integrative way of conceiving the world. This is intensified within theological traditions that reinforce a dualism between humans and nature.\textsuperscript{38}

The Christian community needs the contributions of Christian traditions that have integrative theological language and visualization to meet the challenge of climate change, providing the language that is largely absent in Western intellectual traditions. The intractability of the problem of global climate change is due to its multi-faceted causes and solutions. How do we achieve global economic justice, while reducing greenhouse gases? How do we make transit systems socially acceptable and economically feasible, overcoming a culture and infrastructure that is dependent on the automobile? These challenges require highly integrated ways of looking at life, ways of seeing the world that perceive living within limits as not taking away freedom, but rather bringing out opportunities for life in new ways. This integrative worldview envisions reducing our carbon footprint through more densely packed settlement as creating the possibility for more mass transit which in turn creates the potential for more heterogeneous neighborhoods and more neighborliness. This view of the world encourages buying local food not just because it means less fuel expended in the transportation of the goods, but also because it leads to a richer sense of the region and the connection between farm and market. Integrative Christian traditions see all of these choices as having spiritual implications.

**Responsibility: Routes to Social Change**

The third and final factor in my framework of analysis is focused on perceived routes to social change, or the issue of responsibility. All policies addressing global climate change involve forms of constraint and restraint. But how do different Christian traditions envision routes to social change? Must change be accomplished through individual transformation and conversion, or through structural change? Is sin embedded in individuals or can it also be embedded in structures?

In general, those Christian traditions that are more individualistic in their conception of society are more strongly connected to American cultural emphasis on individual rights and actions—whether on the right or the left in terms of religious traditions. For example, many mainline Protestant denominations work out of a model of individual activism. On the conservative side, evangelicals and fundamentalists emphasize individual conversion.\textsuperscript{39} Individualists see problems embedded in the lack of morality of individuals, while those that are more communal conceive of societal problems as at least partially embedded in societal structures. This initial assumption leads to different perceived routes to change, social change through individual transformation for the former and social change through the transformation of societal structures for the latter.

Individualistic conceptions of society are often tied to individual property rights and prominence of economic values. Climate change will require communal restraint, requiring that more individualistic religious traditions enlarge their imaginations to accept the value of community and community-wide or global constraints.

A growing dialogue within the Christian community holds some promise for overcoming the American individualism that paralyzes us in responding to the need for constraints and restraints. Traditional theological reflection on what it means to be made in the image of God has centered on traits that are possessed by individuals, traits such as “rational thought.” This tradition is now in dialogue with a minority tradition that identifies being in the image of God with being created for relationship.\textsuperscript{40} And in this relatedness, nature is not a neutral backdrop, but rather God, humanity, and nature are inextricably bound up with one another.

Theologian Colin Gunton, coming out of this theological tradition, goes so far as to say that it is wrong to abstract humans from their social context, but it is also wrong to abstract the environment from its inhabitants. He argues that such abstraction empties the world of its personal meaning because humans have a deep desire to be connected to each other and to the earth.\textsuperscript{41} This theologizing may deepen the ability of American Christians to conceive of strengthening relationships rather than individual freedom as the route to addressing the challenge of climate change while at the same time following a spiritual path that recognizes a particular way that humans image God.
Church structure and history also impact views on social change. The sociology of church structure cannot be ignored. Evangelical culture is shaped by the independence of each congregation, and by mobility. This structural independence led historian Ron Wells, in the early 1980s, to state,

So angered have I been lately with the Moral Majority and their kind that I wanted to make some public gesture of disassociation of myself with them. But to whom, or from whom, would I resign?  

This lack of an overarching structure, in comparison to other traditions, has meant that change within evangelical circles tends to be personality driven and shaped by Christian publishing and broadcasting. Mainline denominations and the Catholic church have more hierarchical or synodical governance structures, increasing the possibility of social change through direct denominational channels.

The National Religious Partnership for the Environment (NRPE) is an example of an organization that has been effective in working within the sociology of difference in addressing the issue of climate change. The NRPE is an organization made up of the US Conference of Catholic Bishops, the Coalition on the Environment and Jewish Life, the National Council of Churches, and the Evangelical Environmental Network. The NRPE respects the cultures, beliefs, and structures of each of its partners and enables each partner to develop its own strategy for bringing its community along in their understanding of climate change.

The Evangelical Environmental Network, as part of the NRPE, established the Evangelical Climate Initiative (ECI) process. Because of the sociology of the evangelical community, the strategy involved first gathering a well-respected group of evangelical leaders to meet with a similarly highly regarded group of scientists who were also evangelical Christians. The ECI grew out of discussions among this group and its statement was signed by over eighty evangelical leaders before it went public. Because of the nature of this social group, the next steps include continuing to recruit leaders, and targeting Christian radio and publications.

Christian traditions arise out of particular sociological contexts which influence the choices for effective strategies for incorporating these various traditions into movements to address climate change. But also the histories and stories of particular Christian traditions shape their theological development. Mennonites are an example of a group particularly impacted by its history. Surprisingly, Mennonites have expressed a utilitarian view of humans’ relationship to nature. Until recently, Mennonite theology made little reference to the preservation of the earth, though practice has tended in that direction. Most Mennonite theology has been concerned with church-state issues due to Mennonite pacifism, leaving the topic of nature in need of further exploration. Thus, while Mennonites are known for their compassion for the underclass, such compassion has not been typically extended to nature.

But once again, groups are not easily classified. Because the Mennonite tradition puts a great emphasis on simplicity and communal life, Mennonites are suspicious of wealth, which tempers this utilitarian perspective. Thus, even though Mennonites may view the natural environment as basically for human use, they do not put the individual or economic growth above the good of the environment, and therefore are more open to constraints related to global climate change. Mennonites may be drawn into the concerns over climate change through the lens of simplicity in living, the vulnerability of the poor, and through concerns over justice.

Conclusion

I have looked at three major factors that influence attitudes toward nature and approaches to environmental problems, particularly climate change. The first factor was eschatology, or beliefs about the future. Where is history going? The second factor was integration. How do traditions theologically construct the relationship among humans, nature, and God? The third factor was responsibility. Who, or what, is responsible for social change? And how is social change to be accomplished?

As my analysis of these three factors makes clear, the issue of climate change and the Christian church is complex. However, understanding such complexity should not be seen as an impediment to moving forward, but rather should lay the groundwork for dialogue with the purpose of addressing climate change. To be effective in engaging the Christian community on the issue of climate change, we must
first understand the range of basic assumptions that the various groups bring to the discussions. We must also be able to discern the difference between religious beliefs and dominant cultural beliefs. For example, we must not mistake differences in approaches to social change with differences in whether individuals believe that global climate change is taking place.

To bring about effective social change, we must find those aspects of belief systems that resonate with concern over climate change, and then argue from those positions. For example, evangelicals are finding partners among mission groups that work in the developing world. These groups work together for policies that address global climate change because of concern for the poor. Framing concerns within the filter of justice and simple lifestyle draws Mennonites into the discussions.

Finally, we need to accept a diverse range of on-the-ground strategies, all needed to reach the diversity of groups. Evangelicals are best engaged in discussions through their leaders and mass media. The Catholic church is greatly influenced through its hierarchy and official statements by its leadership. Mainline Protestants are much more tied into information and discussions that come through secular organizations as well as from their denominational organizations, the National Council of Churches, and the World Council of Churches.

We cannot afford to work against each other. We need to work with the cultures of belief systems, to whatever extent possible. The model of the National Religious Partnership for the Environment is a good model because all communities are allowed to be themselves, and to frame their approach to be most effective. However, even this approach requires a conviction that global climate change is upon us and that a unified response is needed.

The challenge of constructing climate change policy is that it involves not only the range of religious worldviews, but also national and cultural worldviews. Environmental conflict resolution literature points out that worldviews are not so much a problem as the lack of worldview transparency in the negotiations of policies. Christians and non-Christians alike need each other and must find common ground.

Notes

5. I assume the reality of human-induced climate change in this article.
10. To see how my empirical research contributes to the range of scholarly work on religion and environmental attitudes, see the particular articles cited in this article that come out of that empirical research. They each include extensive references to the literature in the field, the methods of my research, and the results of the empirical research.
23Curry and Groenendyk, “Place and Nature Seen through the Eyes of Faith,” 346.
24Ibid.
27Ackerman, “Global Warming: Scientific Basis and Christian Responses,” 266; Interfaith Alliance, www.interfaithstewardship.org; Cornwall Declaration.
28www.interfaithstewardship.org/pages/cornwall.php (accessed December 5, 2007); Dean Ohlman, “Responding to the Interfaith Stewardship Alliance Statement on Climate Change,” manuscript (June 23, 2006); debate between Robert Sirico, President, Acton Institute and Ron Sider, Evangelicals for Social Action at Calvin Seminary (fall 2006). For another comparison between these two groups, see Brian McCammack, “Evangelicalism and the Climate Change Policy Debate,” American Quarterly 59, no. 3 (2007): 645–68.
29Ackerman, “Global Warming: Scientific Basis and Christian Responses,” 261. For transparency, let me state that I am chair of the board of the Evangelical Environmental Network and have signed the Evangelical Climate Initiative statement.
33Curry and Groenendyk, “Place and Nature Seen through the Eyes of Faith,” 343. The research reported in this article includes diagrams drawn by seminarians on the perceived relationship between God, humanity, and nature.
38Curry and Groenendyk, “Place and Nature Seen through the Eyes of Faith,” 326–54.
41Colin E. Gunton, The One, the Three and the Many: God, Creation and the Culture of Modernity (Cambridge: Cambridge University Press, 1993), 16.
Old Earth?

THE BIBLE, ROCKS AND TIME

Geological Evidence for the Age of the Earth
Davis A. Young and Ralph F. Stearley

"The Bible, Rocks and Time is a thoughtful book by Christian scientists for anyone interested in reconciling Genesis and geology. Planet Earth and life on our planet have long, complex and deeply interesting histories written in rocks and fossils that will never go away. Here professors Davis A. Young and Ralph F. Stearley lead us through a timely and constructive synthesis of religion and science."
—Philip D. Gingerich, professor of geology and paleontology, University of Michigan

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Climate change has also been progressively recognized as a key subject in the minerals industry, both from the relevance of this environmental issue globally and from its strong connection with the mining activities [4,8,51,52]. Sustainability 2018, 10, x FOR PEER REVIEW 7 of 38 technically, economically and commercially distant outer space mining [4,50]. This paper provides the basis for the development of a social sustainability framework for the analysis of the impact of technological innovation on facilities management professionals. Further empirical study is needed to verify the findings. Changing Perspectives on Climate Change Induced Migration A Changing Framework. 2.3.3. Further, the social consequences of climate change generally, and migration and climate change specifically, are quite under-researched. The framework promoted here can inform future studies on migration victim profiles, and serve as a basis for the development of prediction models on migration and conflict risk using climate inputs. v. Introduction. This is a stocktaking piece on the social consequences of climate change, with a specific focus on the relationship between environmental hazards and migration. Be it in relation to climate change, disasters, globalization and economic development, and social–ecological system changes more generally, vulnerability is a complex and multifaceted concept that has attracted the attention of scholars and development practitioners from all disciplines. The many interpretations of vulnerability and its many scales (e.g. individual, community, ecosystem, countries, continents) and fields of application have led to a wide array of propositions regarding ways and means by which vulnerability could be studied, characterized, understood, and acted upon.