



FOUR COMMENTARIES ON THE POPE'S MESSAGE ON
CLIMATE CHANGE AND INCOME INEQUALITY

II. INTEGRATING ECOLOGY AND JUSTICE:
THE PAPAL ENCYCLICAL

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“An authentic humanity, calling for a new synthesis” (sec. 112).

“Let us sing as we go. May our struggles and our concern for this planet never take away the joy of our hope” (sec. 244).

THE REACH OF THE ENCYCLICAL
ON June 18, 2015, Pope Francis released *Laudato Si'*, the first encyclical in the history of the Catholic Church on ecology. An Encyclical is the highest-level teaching document in Catholicism. There have been earlier statements by popes and bishops on the environment, but never an Encyclical.

The media coverage of this document has been unprecedented, including coverage in all of the major newspapers and media outlets in the United States. This is partly due to the popularity of Pope Francis and his authority as a moral voice for the poor and oppressed. But the attention is

also due to increasing severity of environmental issues, especially climate change as highlighted by Intergovernmental Panel on Climate Change (IPCC) reports.

With 1.2 billion Catholics on the planet, the potential for attention to the environment and climate change is unprecedented. Even if, as some argue, encyclicals do not draw the response and obligation from Catholics as in the past, it is clear that this one will be discussed in religious and educational circles radiating out into the larger Christian world and beyond. With a total of over 2 billion Christians, the effect over time could be significant.

BOX 1

*Key topics of Laudato Si'***1. What is Happening to Our Common Home**

- The State of the World: pollution and climate change
- Water, biodiversity, inequity
- *Widespread environmental degradation and poverty*

2. Gospel of Creation

- Mystery of the universe
- Harmony of creation
- Universal communion
- *World as sacrament of communion*

3. The Human Roots of the Ecological Crisis

- Economic growth and “progress” without limits
- Market capitalism and technocratic paradigm
- Excessive anthropocentrism and relativism
- Nature as dead object to be used by humans
- Devaluing work and workers
- *Need a new synthesis*

4. Integral ecology

- Ecology, economics, equity integrated
- Cultural ecology
- Principle of the common good
- Ecojustice encompasses people and the planet
- *Catholic social teaching tradition expanded*

5. Lines of Approach and Action: Dialogue

- International, national, local
- Politics and economy
- Religion and science
- *Interreligious and interdisciplinary cooperation*

6. Ecological Education and Spirituality

- New lifestyle
- Covenant between humanity and the environment
- “Ecological conversion” (Pope John Paul II) that includes “The Cosmic Common Good”
- *A cosmological perspective of interrelatedness is part of the encyclical both explicitly and implicitly.*

INFLUENCE ON EDUCATION

Indeed, this has enormous transformative potential within education, both in secondary schools and universities around the globe. This is particularly true in religiously based educational institutions. For example, there

are 28 Jesuit universities in the United States, all of which are finding ways to incorporate the encyclical into their curriculum, especially as Pope Francis is a Jesuit. There was a major conference at Loyola University in Chicago in March 2015 anticipating how the

Jesuit universities in the United States will respond to the environmental challenges. To assist this process, Loyola released a free online environmental textbook called *Healing Earth*, edited by Nancy Tuchman and Michael Schuck (2016). It informs students of critical environmental issues, but also challenges them to examine the ethical implications of these issues. This is very much in the spirit of the Encyclical. The 324 Jesuit secondary schools and the 150 other Jesuit universities around the world will also be drawing on this textbook.

INFLUENCE ON UNITED NATIONS

The timing of the Encyclical and the pope's visit to the United States last fall was clearly intended to influence the U.N. climate talks in December 2015. On September 24, 2015, Pope Francis spoke to a joint session of the U.S. Congress and the following day he addressed the U.N. General Assembly to highlight the urgent need for climate change action, sustainable development, and "ecological conversion." He was speaking not just to Catholics, but also to all people on the planet. It was at the conclusion of his talk at the U.N. that the new Sustainable Development Goals were unanimously passed by 195 nations. The Pope's moral influence was also present at the COP21 negotiations in Paris where climate justice was a major theme in the discussions. A high-level panel on the Encyclical was held on December 7, 2015, at Notre Dame Cathedral during the U.N. negotiations.

RELIGIOUS COMMUNITIES AWAKENING

A long-term hope, then, is that the pope's urgent appeal regarding climate justice and genuine sustainable development will provide a clarion call for awakening to our planetary crisis—not just among 2 billion Christians, but among other religious groups as well. There are more than a billion Muslims, a billion Hindus, a billion Confucians, and nearly 500 million Buddhists, many of whom are hearing this urgent call for change. There

have already been statements of support for the Encyclical from Jewish and Muslim leaders, as well as Hindus and Buddhists.

It should be noted that there have also been valuable, although much briefer, statements on the environment and on climate change from all of the world's religions over the last two decades. These are collected at the Yale Forum on Religion and Ecology website (<http://fore.yale.edu>). On this website are discrete sections for 10 of the major world religions as well as indigenous traditions. In those sections there are:

- introductory essays on the tradition and views of nature;
- annotated bibliographies of published works in religion and ecology for that tradition;
- statements on the importance of care for the environment;
- engaged grassroots projects; and
- videos and other links.

Despite the richness of these statements and the numerous books that have been already been published, there is nothing available that compares to the Papal Encyclical in terms of moral influence. For efficacy in awakening minds and hearts and for long-term educational awareness regarding environmental issues this is a watershed document. Catholics and other Christians are already teaching the Encyclical and preparing curriculum around its teachings.

The Encyclical is a unique document for many reasons, especially because of its comprehensive and inclusive nature and its long and careful preparation. Prior to its release there was extensive consulting with experts from many areas, including science, ethics, policy, and theology. Meetings were convened at the Pontifical Academy of Sciences and the Pontifical Council for Justice and Peace. The Encyclical was translated for release into multiple languages. It draws extensively on statements from other popes and bishops as well as the Ecumenical Patriarch of the Greek Orthodox Church, Bartholomew I. This inclusion of the Ecumenical Patriarch is unprecedented, as was the presence of prominent Orthodox theologians Metropolitan John of Pergamon at the official release

at the Vatican and the Reverend Dr. John Chryssavgis at the United Nations on June 30.

Finally, because of the pope's unique position as head of one of the largest religious denominations on the planet with institutional heritage of 2000 years, there is greater opportunity for his voice to be heard. There is no other religious leader who commands such moral authority over so many people. Even the most respected world leader in the Buddhist tradition, the Dalai Lama, speaks on behalf of several million Tibetans. No one figure can speak in the same way on behalf of Buddhism, Hinduism, Confucianism, Daoism, Judaism, or Islam.

Perhaps most importantly this is also a critical document because it brings together environmental concerns with human suffering. All of this is indispensable for the future flourishing of our planetary community. And clearly secular humanists and environmentalists have responded positively to the Encyclical's refrain, "*cry of the earth and the cry of the poor*" (sec. 49).

ENVIRONMENTALISTS ENCOURAGED

The encyclical is increasingly a source of encouragement to environmentalists who are not overtly religious, but who care deeply about the environment, often for aesthetic and spiritual reasons. Many have devoted themselves tirelessly to understanding and protecting the environment and are finding fresh inspiration in the Encyclical. They are also concerned about the effects of climate change on the most vulnerable.

This is the case at the Yale School of Forestry and Environmental Studies where we teach. Our dean, Peter Crane, an eminent paleobotanist, encouraged us to organize a public panel at Yale on the Encyclical on April 8, 2015, even before it was published. He opened the panel by noting that environment issues are no longer simply scientific alone, rather they are moral issues. In August 2015, the Ecological Society of America (ESA) held its annual meeting in Baltimore, which included a whole day of panels on environment and religion. The ESA president, past president, and incom-

ing president all issued a statement endorsing the Encyclical. This was unprecedented for ESA and caught the attention of other professional science organizations.

CLIMATE CHANGE COMMUNICATIONS

Indeed, many scientists and ecologists have been keen to draw on the message of the Encyclical and are impressed by its solid scientific grounding. They have realized that simply telling people the scientific facts about climate change or showing them charts and graphs does not alone change mindsets or effect behavior.

We can all cite numerous scientific meetings on climate communications that have been trying to figure out how to heighten awareness of the gravity of the climate issues and ascertain what is needed to move toward a sustainable future. It should be noted this is especially the case in the United States, as other parts of the world are not burdened with climate change skeptics and deniers. Indeed, we have been the "outlaws" in so many international conferences on climate change. Hopefully, the Paris agreements will shift some of that perception as U.S. Secretary of State John Kerry and his chief negotiator Todd Stern and his team did a commendable job in the negotiations leading up to and during the conference.

ADVOCACY AND ACTIVISM

Until recently scientists have primarily focused on research, modeling, and publishing technical studies; but they have not fully factored human behavior into the equation. More recently they are relying on social scientists for this information. Moreover, by and large, scientists wish to remain "neutral" or "objective" and avoid making policy statements or moral pronouncements. For many scientific researchers this crosses the line to activism. On the other hand, many non-governmental organizations and religious groups have focused only on aid, relief work, and poverty alleviation. They have been unaware or less concerned about the growing threat of environmental degradation and

global warming. Bringing concerns for people and the planet together is one of the primary aims of the Encyclical.

SOCIAL JUSTICE AND ECOLOGICAL JUSTICE

What distinguishes the Pope's perspective, then, is the linking of environmental and climate discussions with issues of social justice, poverty, and economic inequality—themes often missing from the official climate change reports until fairly recently. This has the potential to transform the debate by connecting environmental science and policy with a century of social justice teachings from the Christian churches. Ecology and equity are inextricably linked, says Pope Francis. That is his message not just for Christians but for all of humanity as well.

ECOLOGY AND JUSTICE SERIES ON INTEGRAL ECOLOGY

Indeed, it is why we have been editing books in the Series on Ecology and Justice by Orbis Books for nearly two decades (<http://www.orbisbooks.com/category-202/>). There are some 20 books in the series that tries to build bridges between these perspectives. Ecology was dismissed by some theologians as involving simply wilderness preservation or the rights of trees; although poverty amelioration was sometimes viewed by environmentalists as secondary to preserving ecosystems. These concerns are coming together now in religious and environmental circles, as they are clearly linked.

In this regard it is worth noting that two of the other editors in the Orbis Books series were major influences on the Encyclical, namely, the Irish Columban priest who served many years among the T'boli people in the Philippines, Sean McDonagh, and the Brazilian liberation theologian, Leonardo Boff.

Boff's book *Cry of the Earth, Cry of the Poor* is in the Orbis series and the theme is discussed in the Encyclical. Boff in turn was deeply influenced by Thomas Berry's "dream of the Earth and cry of the Earth" (Berry 1988). He realized, as did other liberation theologians

after reading Berry, there is no liberation for humans without liberation of the Earth from exploitation. Boff thus has woven into his writings a profound appreciation for the cosmological perspective of Brian Swimme and Thomas Berry in their book, *The Universe Story* (1992). As well, Boff has brought this evolutionary framework into the Earth Charter movement where he has been active as a commissioner from Latin America.

EARTH CHARTER: COSMOLOGY, ECOLOGY, JUSTICE, AND PEACE

Those of us on the three-year drafting committee of the Earth Charter, which was released in 2000, tried to bring these elements together of cosmology, ecology, justice, and peace. The preface to the Charter intentionally includes the cosmological lines: "Humanity is part of a vast evolving universe. Earth, our home, is alive with a unique community of life. . . . Earth has provided the conditions essential to life's evolution. The resilience of the community of life and the well-being of humanity depend on preserving the biosphere" (Earth Charter 2000).

The three sections of the Charter are:

1) *Ecological integrity*

Everything, including human well-being, depends on the health of ecosystems. We are now seeing environmental refugees and the largest migrations since World War II—more than 11 million—because of environmental degradation, drought, and climate change;

2) *Social and economic justice*

We cannot create functional economies based on massive inequalities such as have emerged in the last several decades around the world;

3) *Democracy, nonviolence, and peace*

We need genuinely democratic political systems along with a culture of peace and nonviolence to insure long-term sustainability.

This integrated ecology also points toward hope. That is reflected in Pope Francis' quote in the Encyclical from the Earth

Charter: "As never before in history, common destiny beckons us to seek a new beginning. . . . 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" (sec. 207).

INTERDISCIPLINARY AND ECUMENICAL COOPERATION

It is important to note that from the outset Pope Francis encourages genuine interdisciplinary, ecumenical, and interreligious cooperation around the concerns of the Encyclical. This is not just about foregrounding Catholic theology or ethics; this is a real world dialogue with humility. He notes the Church does not have all of the answers; it does not "presume to settle scientific questions or to replace politics" (sec. 188).

INTERDISCIPLINARY DIALOGUE WITH BUSINESS, POLITICS, AND SCIENCE

In January 2014, the pope addressed politicians and business leaders at Davos, noting that a "renewed, profound and broadened sense of responsibility" is critical for serving the common good (Pope Francis 2014). On April 28, 2015, before *Laudato Si'* was published, he convened scientists, economists, and religious leaders from all over the world at the Vatican to highlight the moral dimensions of our global environmental crisis. These included scientists such as Hans Joachim Schellnhuber, director of the Potsdam Institute for Climate Impact Research and chair of the German Advisory Council on Global Change, and Peter Raven, former director of the Missouri Botanical Garden.

ECUMENICAL DIALOGUE WITH THE ORTHODOX CHURCH

At the beginning of the Encyclical Pope Francis makes an unprecedented ecumenical gesture by acknowledging the pioneering work of the Ecumenical Patriarch Bartholomew I of the Greek Orthodox Church.

Bartholomew I, known as the Green Patriarch, has been raising awareness of ecological problems for some 20 years, especially around water issues in his eight symposia on Religion, Science and the Environment. A primary theological influence in these symposia is John of Pergamon. He was one of three spokespersons at the Vatican when the Encyclical was released. The pope recognizes that the Patriarch has been using forceful terms such as "ecological sin" and "crimes against creation" to describe our present destructive situation.

It is worth noting that this is the first time an Orthodox Patriarch has been cited in an Encyclical. In this effort (both ecological and ecumenical), Pope Francis and Bartholomew I have created a new rapprochement in the historical separation of Roman Catholicism and Eastern Orthodoxy. All of this draws on a profound incarnational spirituality of both traditions, as well as a cosmological sensibility regarding the universe as sacred that is especially present in Eastern orthodoxy.

BOTH INTERDISCIPLINARY AND ECUMENICAL AT VATICAN AND U.N.

At the Vatican press conference when the Encyclical was released in eight languages, there were three main participants. The renowned German scientist Hans Joachim Schellnhuber; the leading Orthodox theologian on the environment John of Pergamon; and the distinguished Ghanaian Cardinal Peter Kodwo Appiah Turkson, director of the Pontifical Council for Justice and Peace. Pope Francis was not present. Science and religion were brought together in these figures along with cosmology, ecology, and justice.

In a similar ecumenical and interdisciplinary spirit, the pope commissioned Cardinal Turkson to convene a gathering at the United Nations on June 30 to announce the Encyclical in this international setting and to call for concerted ecological and social change by religious, political, and educational leaders. This event was presided over by Christiana Figueres, executive secretary of the U.N. Framework Convention

on Climate Change. The response to Turkson's talk was given by Orthodox theologian the Reverend Dr. John Chryssavgis.

CATHOLIC SOCIAL TEACHINGS
EXPANDED TO INCLUDE THE EARTH
AND FUTURE GENERATIONS

Pope Francis could not have chosen a more central or pressing topic than the human role in ecological degradation and climate change. He critiques our "technocratic paradigm" (sec. 101) and "throwaway culture" (sec. 16). He calls for a transformation of our market-based economic system that he feels is destroying the planet and creating immense social inequities. Indeed, the Encyclical is highly critical of unfettered capitalism and rampant consumerism. He sees unregulated economic growth as problematic for the long-term sustainability of the community of life—both human and natural.

This might seem like a radical message—but it is also the culmination of a century of Catholic social justice teaching. By drawing on and developing the work of earlier theologians and ethicists, this Encyclical makes explicit the links between social justice and our newer understanding of ecojustice. Pope Francis also went to great lengths to cite the words and ideas of his pontifical predecessors, and the insights of the letters from 18 bishops around the world. Thus, the pope is drawing on earlier Church documents that have already highlighted the environment. This is a strategic move lest the Encyclical be seen as radical or out of step with Church teachings.

INTEGRAL ECOLOGY

Cardinal Turkson is one of the key architects of the Encyclical. He believes Pope Francis' phrase "integral ecology" is central to understanding his message. Turkson has identified several principles behind the phrase: the moral imperative of all peoples to be protectors of the environment; care for creation as a virtue in its own right; and the need for a new global solidarity to direct our search for the common good (Gronski 2015).

Integral ecology, then, means that ecological integrity and social justice are linked because humans and nature are part of nurturing, interdependent life systems. Given that the poor and vulnerable are most adversely affected by an ailing planetary system, the two must be addressed together. Although this draws on traditional Christian teachings regarding care for the poor, it also marks an important shift in the Church's conception of the relationship of humans to nature and humans to work.

RELATED TEACHINGS OF PRIOR POPES

We can compare Pope Francis' thinking to the writing of Pope John Paul II, who himself builds on Pope Leo XIII's progressive Encyclical *Rerum Novarum* that focused on workers' rights in 1891. In this document, Pope Leo XIII highlighted "the condition of the working class" (*Rerum Novarum* sec. 2) in which their labor had become a mere commodity in an economic milieu that gave primacy to a free market and unregulated exploitation of workers.

One hundred years after Pope Leo XIII, in 1991, Pope John Paul II writes:

The original source of all that is good is the very act of God, who created both the earth and man, and who gave the earth to man so that he might have dominion over it by his work and enjoy its fruits (Gen 1:28). . . . It is through work that man, using his intelligence and exercising his freedom, succeeds in dominating the earth and making it a fitting home. . . . Obviously, he also has the responsibility not to hinder others from having their own part of God's gift; indeed, he must cooperate with others so that together all can dominate the earth (*Centesimus Annus* sec. 31).

Drawing heavily on biblical language of domination, Pope John Paul II underscores the modern separation of humans from nature. However, he also emphasizes the dignity of cooperative human labor as making something productive of God's gift of nature. Thus, the traditional perspective of "dominion" in Genesis is balanced by a call

for “stewardship” of nature. This traditional view stands in marked contrast to his successors’ more holistic view of nature.

Pope Benedict XVI, for example, expanded Catholic thinking regarding the environment. His 2009 Encyclical, *Caritas in Veritate*, is focused on charity and our duty to the poor as well as obligations to present and future generations. He wrote of this responsibility arising from

our relationship to the natural environment. The environment is God’s gift to everyone, and in our use of it we have a responsibility towards the poor, towards future generations and towards humanity as a whole. When nature, including the human being, is viewed as the result of mere chance or evolutionary determinism, our sense of responsibility wanes. In nature, the believer recognizes the wonderful result of God’s creative activity, which we may use responsibly to satisfy our legitimate needs, material or otherwise, while respecting the intrinsic balance of creation (Caritas in Veritate sec. 48).

Pope Benedict XVI moves away from language of domination of nature toward the protection of nature. Yet, he holds to a view of creation as in balance, which differs from the more contemporary perspectives of ecological science, namely that nature is in flux and ecosystems are in dynamic disequilibrium. However, he also presents what he calls the “grammar” of nature that evokes awe and reverence saying

the natural environment is more than raw material to be manipulated at our pleasure; it is a wondrous work of the Creator containing a “grammar,” which sets forth ends and criteria for its wise use, not its reckless exploitation. Today much harm is done to development precisely as a result of these distorted notions. Reducing nature merely to a collection of contingent data ends up doing violence to the environment and even encouraging activity that fails to respect human nature itself (Caritas in Veritate sec. 48).

This echoes Thomas Berry’s well-known phrase that the “universe is a communion of subjects, not a collection of objects” (Berry

1999:82). Pope Benedict XVI goes on to write on the importance of justice for future generations observing that global development

cannot ignore coming generations, but need to be marked by solidarity and inter-generational justice, while taking into account a variety of contexts: ecological, juridical, economic, political and cultural (Caritas in Veritate sec. 48).

There is a clear shift here from Pope John Paul II. Yet Pope Benedict XVI still relies on an anthropocentric ethic of “wise use” of nature. Perhaps he was wary that talking about nature’s inherent goodness might open him to the charge of neopaganism from conservative factions within the Church.

Pope Francis does not seem to have such reservations. Indeed, following St. Francis of Assisi, he invokes “Mother Earth” in the opening paragraph of the Encyclical. This is a perspective much more familiar to Latin American Catholics. His evocation of the *Canticle of the Sun* similarly places the Encyclical precisely in the tradition of Franciscan nature mysticism. In this case the Franciscan spirit evokes awe that leads to action and reverence that leads to responsibility.

This will require a broader ethical framework than simply the human context. It is why Daniel Scheid, a theologian at Duquesne University, is calling for cosmological ethics for *The Cosmic Common Good* (2016). Such a broadened framework allows us an evolutionary valuing of life over billions of years. It moves from an anthropocentric to an anthropocosmic perspective.

It is not only awe and wonder and evolution that Pope Francis draws on. He also shifts the Church to a view of nature in line with environmental science. He calls for increased ecological literacy and understanding of environmental problems. He relies heavily on scientific understanding of ecosystems and climate change, no doubt in part because of his own science studies and teaching in chemistry.

Pope Francis has left the earlier biblical language of domination for an understanding of integral ecology that connects humans to their environment and indeed to the whole evolutionary process. He high-

lights the mystery of the universe and the harmony of creation.

COSMOLOGICAL AND EVOLUTIONARY PERSPECTIVES

In this respect there are echoes in the Encyclical of the influence of two progressive Catholic thinkers of the 20th century, namely, the scientist Pierre Teilhard de Chardin (1881–1955; <http://teillarddechardin.org>) and the cultural historian Thomas Berry (1914–2009; <http://thomasberry.org>). Both of these thinkers saw something akin to the “grammar of nature” as reflecting an evolutionary unfolding of Earth’s ecosystems. This included the inner patterning of things as well as emergent properties and self-organizing dynamics leading to greater complexification of things.

Teilhard de Chardin was a Jesuit priest and paleontologist whose thinking about evolution led to his exile from Europe to China in the late 1920s. Of particular import is Teilhard de Chardin’s understanding of the human phenomenon as arising from and deeply connected to the dynamic, unfolding universe. He felt that if we do not sense this connection we would lose our way, our purpose for living.

He observes:

Man has every right to be anxious about his fate so long as he feels himself to be lost and lonely in the midst of the mass of created things. But let him once discover that his fate is bound up with the fate of nature itself, and immediately, joyously, he will begin again his forward march. For it would denote in him not a critical sense but a malady of the spirit if he were doubtful of the value and the hopes of an entire world (Teilhard de Chardin 1965:109).

Pope Francis has drawn on the same notion to describe a dynamic cosmological and ecological relationship of humans with all of life. “[A]s part of the universe, called into being by one Father, all of us are linked by unseen bonds and together form a kind of universal family, a sublime communion which fills us with a sacred, affectionate and

humble respect. . . . ‘God has joined us so closely to the world around us that we can feel the desertification of the soil almost as a physical ailment, and the extinction of a species as a painful disfigurement’” (sec. 89).

There are echoes here of cultural historian Thomas Berry who, following Teilhard de Chardin, situated the human as arising from, and dependent on, this long evolutionary journey. He wrote that the loss of a species was the loss of a divine voice. He notes that:

At such a moment [as the present] a new revelatory experience is needed, an experience wherein human consciousness awakens to the grandeur and sacred quality of Earth process. This awakening is our human participation in the dream of Earth (Berry 2009:123).

From this cosmological perspective Berry calls on humans to participate in the Great Work of ecological transformation, as does Pope Francis—building new ecological economics, new educational and political systems, and new religious and spiritual communities that are aligned with Earth’s capacities and limits.

It is this evolutionary understanding of Earth’s systems, so central to Teilhard de Chardin and Berry, that provides a broad context for the pope’s own revolutionary thinking. Indeed, this is the integrative perspective of *Journey of the Universe*, which narrates the epic story of evolution in film and book form (*Journey of the Universe* 2011; Swimme and Tucker 2011).

This integration resituates the human as part of the vast unfolding universe, and thus responsible for the continuity of the life systems on the planet. As the *Journey* conversations indicate, this brings together new models for the well-being of the Earth Community in cosmology, ecology, and justice.

This integrated perspective for humans of a change of consciousness and conscience promises to have a rippling effect on the contemporary climate debate. Without this integrated sense of mutually enhancing human-Earth relations in an evolving universe, climate discussions can become sim-

ply business as usual amid policy proposals, market-based schemes, and technological fixes. In this broader spirit, the Encyclical calls on communities and individuals to awaken to the beauty of creation and to engage in action for climate justice. This is the heart of integral ecology where people and planet are seen as one.

Thus, the publication of the Papal Encyclical is a unique opportunity to scale up and move forward. That is because it provides a renewed moral force and shared

ethical commitment regarding environmental issues, especially climate change. It also highlights the fact that we have a special kinship with nature and are responsible for its continuity for future generations. Indeed, the flourishing of Earth, *Our Common Home*, may depend on how humans heed this moral call to “ecological conversion.” Seeing ourselves as part of an Earth community that has been birthed out of deep time is a major step in this direction.

REFERENCES

- Berry T. 1988. *The Dream of the Earth*. San Francisco (California): Sierra Club Books.
- Berry T. 1999. *The Great Work: Our Way Into the Future*. New York: Bell Tower.
- Berry T. 2009. Reinventing the human at the species level. Pages 117–121 in *The Christian Future and the Fate of Earth*, edited by M. E. Tucker and J. Grim. Maryknoll (New York): Orbis Books.
- Boff L. 1997. *Cry of the Earth, Cry of the Poor*. Maryknoll (New York): Orbis Books.
- Earth Charter. 2000. Preamble. San José (Costa Rica): Earth Charter Initiative.
- Gronski B. 2015. Cardinal Tuckson sheds light on Pope Francis’ environmental encyclical. St. Paul (Minnesota): Catholic Rural Life, University of St. Thomas. <https://catholicrurallife.org/cardinal-tuckson-sheds-light-on-pope-franciss-environmental-encyclical/>.
- Journey of the Universe*. 2011. Film/DVD. <http://www.journeyoftheuniverse.org>.
- Pope Francis. 2014. Message of Pope Francis to the Executive Chairman of the World Economic Forum on the occasion of the annual meeting at Davos-Klosters. Vatican: Libreria Editrice Vaticana.
- Scheid D. P. 2016. *The Cosmic Common Good: Religious Grounds for Ecological Ethics*. Oxford (United Kingdom): Oxford University Press.
- Swimme B. T., Berry T. 1992. *The Universe Story: From the Primordial Flaring Forth to the Ecozoic Era—A Celebration of the Unfolding of the Cosmos*. San Francisco (California): Harper.
- Swimme B. T., Tucker M. E. 2011. *Journey of the Universe*. New Haven (Connecticut): Yale University Press.
- Teilhard de Chardin P. 1965. *Hymn of the Universe*. New York: Harper & Row.
- Tuchman N., Schuck M. 2016. *Healing Earth*. Chicago (Illinois): International Jesuit Ecology Project, Loyola University of Chicago. Available at: <http://healingearth.ijep.net>.

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