

ECOLOGY AND CLIMATE CHANGE: CATHOLIC REFLECTIONS

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Abstract

Over 500 scientists and religious leaders recently signed a joint appeal for climate action, noting that climate change is an ecological and moral emergency that impacts all aspects of our shared lives and requires us to work together to protect our common home. To analyze this emergency, we follow the “see, judge, act” model of Catholic social teaching to explore the issue of ecology and climate change, utilizing the four sources of ethical knowledge, scripture, tradition, science/reason, experience, and an ecological virtuous perspective grounded in personal conversion.

Keywords: Climate; Ecological Conversion; Environment; *Laudato Si'*; “See, Judge, Act,”; Virtues

Catholic Teaching on the Environment

Two ethical misperceptions have led to the present ecological crisis. The first is metaethical relativism, a “disorder which drives one person to take advantage of another, to treat others as mere objects” (*Laudato Si'* 123; henceforth LS). This relativism extends to the environment, which humans objectify and treat as a mere means to fulfilling their own needs and satisfaction with no concern for the

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environment itself. In a recent documentary, Pope Francis asserts this disregard emphatically, declaring planet earth “the poorest of the poor.”¹ The second ethical misperception is a distorted anthropology that Pope Francis calls a “misguided anthropocentrism” that “leads to a misguided lifestyle” (LS 122). This distorted anthropology displaces creation from the centre of reality and puts humans in its place. Francis summarizes the consequences of this anthropological relativism: “When human beings place themselves at the centre, they give absolute priority to immediate convenience and all else becomes relative. Hence, we should not be surprised to find...the rise of a relativism which sees everything as irrelevant unless it serves one’s own immediate interests” (LS 122).

This anthropology distorts connection not only between humans and the material world but also between humans themselves. In the economic disparities between developed and developing countries and between the rich and the poor within those countries, “some consider themselves more human than others, as if they had been born with greater rights” (LS 90). Such an anthropology distorts proper relationships between humans and the material world and between humans themselves, especially the poor who suffer the most from the devastating consequences of climate change. It also distorts proper relationship between humans and God, denying that we are creatures created by God and, therefore, not absolute. The implications of relativism and misguided anthropocentrism lead to ethical norms that disregard the common good and focus on fulfilling only immediate personal needs (LS 123).

We propose in this essay a two-fold approach for analyzing and evaluating this ecological crisis; a virtuous perspective that begins with ecological conversion and the “see, judge, act” ethical method of Catholic social teaching. This approach allows Christians to *see* the injustice at the root of the ecological crisis, to *judge* that injustice, and to *act* to restore justice. To guide us in this method, we propose ecological virtues, first and foremost the virtue of “ecological conversion” recommended by Pope Francis. He calls all women and men to “‘ecological conversion’ whereby the effects of encounter with Jesus Christ are evident in their relationship with the world around them” (LS 217). The connection between a life of virtue and care for God’s creation is essential to a virtuous ecological perspective.

¹ See *Spirituality & Practice*, “Pope Francis – A Man of His Word,” <https://www.spiritualityandpractice.com/films/reviews/view/28591/pope-francis-a-man-of-his-word>.

Ecological Conversion: A Virtuous Perspective

Pope John Paul II introduced the phrase “ecological conversion” into Catholic teaching, intending by it humans’ deepened sensitivity to the ecological disaster confronting them.² Pope Francis’s *Laudato Si’* asks for ecological conversion in human relationship with, and attitude towards, the environment. The term *ecology* derives from the Greek *oikos*-home, as in *Laudato Si’*’s subtitle, *On Care for Our Common Home*, but it has both a narrow biological and a broad theological meaning in the encyclical. Biologically, it designates the interrelationship between all natural organisms, including humans, and their natural environment. Theologically, it confesses and admires the goodness of God’s creation and calls for humans to care for it, guided by the ecological virtues of gratitude for creation, love for creation, solidarity in our common home, mutual responsibility for it, prudent use of it, and justice for all who share it, especially for the poor and vulnerable who are always the most damaged when creation is damaged. It calls also for the recognition of the essential interrelationships that exist between all the organisms that inhabit our common home and for consideration of the social, economic, and political realities that impact these interrelationships.³

For Francis, ecological conversion calls for a number of attitudes which together foster a spirit of generous care, full of tenderness. First, it entails gratitude and gratuitousness, a recognition that the world is God’s loving gift, and that we are called quietly to imitate his generosity in self-sacrifice and good works.... It also entails a loving awareness that we are not disconnected from the rest of creatures but joined in a splendid universal communion. As believers, we do not look at the world from without but from within, conscious of the bonds with which the Father has linked us to all beings. By developing our individual, God-given capacities, an ecological conversion can inspire us to greater creativity and enthusiasm in resolving the world’s problems and in offering ourselves to God “as a living sacrifice, holy and acceptable” (Rom 12:1) (LS 220).

Conversion is at the core of Christian theology, turning away from sin, including the sin of selfishly exploiting our *oikos*-home. Bernard

²Pope John Paul II, “General Audience (Wednesday 17 January 2001),” accessed at: http://w2.vatican.va/content/john-paul-ii/en/audiences/2001/documents/hf_jp-ii_aud_20010117.html.

³Celia Deane-Drummond, “*Laudato Si’* and the Natural Sciences: An Assessment of the Possibilities and Limits,” *Theological Studies* (2016) 392-93. In theological literature the terms “ecology” and “environment” are often used interchangeably.

Loneragan describes conversion as “a radical about-face in which one repudiates characteristic features of one’s previous horizon.”⁴ It is a turning away from “self-absorption” and “self-enclosure” to “self-transcendence.”⁵ Such conversion can be either *intellectual* or *moral*. Intellectual conversion abandons “the myth that fully human knowing is to be conceived on an analogy with seeing and replaces it with the affirmation of a self that knows because it understands correctly.”⁶ Moral conversion is “a shift in the criterion of one’s decisions and choices from satisfaction to values,”⁷ which are “the good as the possible object of rational choice.”⁸ The good available for ecological choice is directly the lowering of both greenhouse-gas emissions and global temperatures and indirectly the preservation of our common creation-home. We emphasize here the notion of choice. Currently, all human beings have a choice they can make between using our creation-home either for personal pleasure and economic profit, a choice that is already leading creation to disaster, or for its preservation for the common good. When we consider this possible choice, again, we have to be especially mindful of its possible implications for the poor, the most vulnerable of our neighbors whom Jesus commands us to love “as yourself” (Mk 12:31). We suggest that the ethical choice of the good and the action demanded of Christians is clear.

Intellectual conversion can aid in understanding ecological conversion in several ways.⁹ First, it helps to ground values by knowing correctly how to combat “practical relativism” (LS 122-123), which promotes a “misguided anthropocentrism” that often “leads to a misguided lifestyle” (LS 122) and exacerbates the ecological crisis. Second, intellectual conversion helps to shift from merely descriptive to explanatory understanding. A key aspect of *Laudato Si’* in respect to ecological conversion is to see the interconnectedness of all things. Without explanatory understanding of climate change, responses to it remain fragmented and ineffective. Third, intellectual conversion can

⁴Robert M. Doran, *Theology and the Dialectics of History*, Toronto: University of Toronto Press, 1990, 35.

⁵Robert M. Doran, “What Does Bernard Lonergan Mean by ‘Conversion’?,” (lecture, University of St. Michael’s College, Toronto, Ontario, Canada, July 15, 2011), 5, accessed at: <https://www.loneraganresource.com/pdf/lectures/What%20Does%20Bernard%20Loneragan%20Mean%20by%20Conversion.pdf>.

⁶Doran, *Theology and the Dialectics of History*, 36.

⁷Doran, *Theology and the Dialectics of History*, 36.

⁸Bernard J.F. Lonergan, *Insight: A Study of Human Understanding*, London: Longmans, 1957, 601.

⁹Neil Ormerod and Cristina Vanin, “Ecological Conversion: What Does It Mean?” *Theological Studies* 77, 2 (2016) 344-46.

help to overcome the disconnect between science and public knowledge by recognizing the objectivity of science. *Laudato Si'* promotes intellectual conversion to facilitate ecological conversion by relying on the sciences to analyze the current crisis and provide solutions to that crisis. Fourth, intellectual conversion provides a balance in the dialogue between science and theology embraced and taught by Popes John Paul II and Francis.

See: Science

The Catholic Church has an abysmal record of integrating scientific conclusions into its theological and anthropological understandings of reality. One need only look to its condemnation of Galileo for defending a heliocentric model of the solar system or the rejection of science in Pope Pius IX's *Syllabus of Errors*. More recently, however, a respect for, and methodological integration of, the sciences has been promoted by both Popes John Paul II and Francis. John Paul highlights the need for intense dialogue between science and theology.¹⁰ Theology and science, he argues, must enter into a "common interactive relationship" whereby, while maintaining its own integrity, each discipline is "open to the discoveries and insights of the other." Francis insists on an "an intense dialogue between science and religion" (LS 62), and *Laudato Si'*'s use of the natural sciences is unprecedented in church statements. Specifically, he draws from the science of environmental studies and climate change and presents a harsh but accurate indictment of the current situation: the earth is becoming "an immense pile of filth" (LS 22). Francis articulates a theological understanding of human relationship to creation and draws out the theological, anthropological, and normative implications of that relationship based on what the sciences tell us about climate change.¹¹ What exactly do the sciences tell us about climate change?

The Intergovernmental Panel on Climate Change, a non-partisan organization, concludes that "scientific evidence for warming and climate change is unequivocal."¹² There is overwhelming consensus among climate scientists (97%) that global warming is occurring and that humans are responsible for it. Since the late-nineteenth century,

¹⁰John Paul II, "The Relationship of Science and Theology: A Letter to Jesuit Father George Coyne," *Origins* 18, 23 (17 November 1988) 375-78.

¹¹See Deane-Drummond, "*Laudato Si'*," 392-415. Although she claims that this encyclical's use of the natural sciences is "unprecedented" in magisterial statements, she still believes that Francis's position on ecology is "idealized" (414).

¹²NASA, "Climate Change: How Do We Know?" *Global Climate Change: Vital Signs of the Planet* (June 12, 2018), accessed at: <https://climate.nasa.gov/evidence/>.

the average surface temperature of the planet has risen two degrees Fahrenheit, an increase largely due to increased levels of carbon dioxide (CO₂) in the atmosphere. Carbon dioxide is a heat-trapping gas caused by burning fossil fuel in automobiles and deforestation. Burning fossil fuels releases carbon dioxide into the atmosphere and the gas then traps the sun's heat; deforestation causes the loss of natural filtering and reduction of the gas. The end result, now well-documented, is an increase in surface temperatures on both land and sea.¹³ Most of this warming has occurred in the last thirty-five years; nineteen of the warmest years on record have occurred since 2000.¹⁴ Currently, the world is in a race to limit global warming to 2° Celsius (3.6 Fahrenheit) above temperatures at the beginning of the industrial revolution. Pre-industrial revolution levels of CO₂ were 280 ppm; currently we are at 409.8 ppm; a sustainable level is 350 ppm.¹⁵ The increase in CO₂ levels is paralleled by an increase in global temperatures. 2020 and 2016 were the hottest years on record since records started being recorded in 1880, 1.1 degrees Celsius (2 degrees Fahrenheit) above pre-industrial levels.¹⁶ At the current rate of warming, anything less than 2° Celsius of warming by 2100 is unlikely.¹⁷

The 2° Celsius mark in global-temperature increase is a threshold mark established by Yale economist William Nordhaus in 1977 and a marker set by the Paris Agreement in 2015. The impact of current and increasing CO₂ levels and global temperatures for the earth are devastating for the planet and all its inhabitants. If we reach that threshold, "life on our planet will change as we know it."¹⁸ Seas will

¹³NASA, "Climate Change: How Do We Know?"

¹⁴NASA, "Global Climate Change: Vital Signs of the Planet: Global Temperature," (2020), accessed at: <https://climate.nasa.gov/vital-signs/global-temperature/>.

¹⁵NASA, "Global Climate Change: Vital Signs of the Planet," (April 2018), accessed at: <https://climate.nasa.gov/vital-signs/carbon-dioxide/>; NOAA, "Climate Change: Atmospheric Carbon Dioxide," (August 14, 2020), accessed at: https://www.climate.gov/sites/default/files/BAMS_SOTC_2019_co2_paleo_1000px.jpg.

¹⁶ World Meteorological Organization, "2020 was One of the Three Warmest Years on Record," (January 15, 2021), accessed at: <https://public.wmo.int/en/media/press-release/2020-was-one-of-three-warmest-years-record#:~:text=All%20five%20datasets%20surveyed%20by,2020%20being%20the%20top%20three.>; and Nicola Jones, "How the World Passed a Carbon Threshold and Why It Matters," *Yale Environment* 360 (January 26, 2017), accessed at: <https://e360.yale.edu/features/how-the-world-passed-a-carbon-threshold-400ppm-and-why-it-matters>.

¹⁷Adrian E. Raftery, et al., "Less than 2° warming by 2100 unlikely," *Nature Climate Change* 7 (2017) 637-41.

¹⁸Ashley Strickland, "Earth to Warm 2 Degrees Celsius by the End of this Century, Studies Say," *CNN Health* (July 31, 2017), accessed at:

continue to rise, wiping out coastal cities, there will be mass extinctions, more intense and prolonged droughts, increased wildfires, more frequent and intense hurricanes. These shifts in weather patterns will reduce crop production and availability of fresh water. In addition, even if there is a drastic reduction in greenhouse gases, the negative environmental effects of current levels on the environment will only gradually reduce given the “shelf-life” of these emissions. Drastic measures must be taken to avoid these increases to prevent these consequences. Climate change scientists emphasize the need for public policy to shift from fossil fuels to renewable sources of energy such as sun, wind, and water. Given this overwhelming scientific evidence for climate change and its disastrous impacts on all creation and the underwhelming response to it in most countries, we now ask: What accounts for this lack of understanding and leadership to address this crisis?

Theologian Richard Miller proposes three reasons for the disconnect between the scientific community’s knowledge of global warming and the public’s lack of knowledge.¹⁹ First, human experience, a foundational source of ethical knowledge, does not necessarily affirm global warming. In 2017-18, the United States’ Midwest experienced a long, cold winter. There was a snowstorm in mid-April 2018 that broke records; the total accumulation of snow in Minneapolis for that April was 26.1 inches, breaking the previous record of 21.8 inches set in 1983. This longer and colder winter and record snow fall led the general population to question scientific claims about global warming. Although experience is certainly an important source of ethical knowledge, this 2018 experience must be interpreted in light of and not despite the scientific evidence. Episodic experience alone, ours, yours, or the good people of Minnesota’s, does not provide sure evidence that runs counter to the established scientific conclusions about global warming. In the last twenty years, nearly 500,000 people have been killed and millions more displaced due to climate change related weather disasters.²⁰

A second reason for the disconnect between ordinary and scientific experience is the intentional effort by those with vested economic and

<https://www.cnn.com/2017/07/31/health/climate-change-two-degrees-studies/index.html>.

¹⁹Richard W. Miller, ed., *God, Creation, and Climate Change: A Catholic Response to the Environmental Crisis*, Maryknoll, NY: Orbis Books, 2010, 2-7.

²⁰See Aljazeera, “Nearly 500,000 Killed by Extreme Weather Disasters in 20 Years,” (January 25, 2021), accessed at: <https://www.aljazeera.com/news/2021/1/25/nearly-500000-people-killed-by-climate-change-related-disasters>.

political interests to promote scepticism of scientific conclusions when it serves their interests. Oil and coal companies have funded so-called “research groups” to spread disinformation about climate change. ExxonMobil is one of the world’s largest fossil fuel corporations and they have not only spread such disinformation for years but a Harvard study in 2017 found that they have done so knowing that climate change is in fact real.²¹ They continue to fund climate change denial groups. The coal industry has also given millions of dollars to lobby groups to promote fictitious clean coal that will supposedly not increase CO₂ emissions and contribute to global warming and climate change. The most promising development of a sustainable clean coal plant in Kemper County, Mississippi, USA, turned into a financial and engineering debacle, losing hundreds of millions of dollars for investors and taxpayers.²² This project was promoted by politicians in the USA who benefit from coal industry lobbying money.

Third, the climate issue has become a politically partisan issue. Unaware of the scientific data themselves, people trust that politicians they support are giving them accurate information about fossil fuels and climate change. In his State of the Union Address in 2018, Donald Trump declared that “We have ended the war on American energy, and we have ended the war on beautiful, clean coal.”²³ His persistent denial of climate change, as well as his withdrawal of the USA from the Paris Climate Agreement signed by President Obama, indicate the politically partisan nature of discussion about climate change that is introduced into public discourse and misinforms the public. For most of his presidency, President George W. Bush censored James Hansen from NASA, but invited Michael Crichton, a science fiction writer and climate change denier, into the White House to explain his case against global warming.²⁴ In addition, Senator James Inhofe from Oklahoma, USA, Chairman of the Senate Committee on the Environment and Public

²¹See Tom DiChristopher, “Exxon Mobil Misled the Public on Climate Change, Harvard Study Finds,” *CNBC* (August 23, 2017), accessed at: <https://www.cnbc.com/2017/08/23/exxon-mobil-misled-the-public-on-climate-change-harvard-study-finds.html>.

²²See Sharon Kelly, “How America’s Clean Coal Dream Unraveled,” *The Guardian* (2 March 2018), accessed at: <https://www.theguardian.com/environment/2018/mar/02/clean-coal-america-kemper-power-plant>.

²³See Umair Irfan, “Trump’s Perennial ‘War on Coal’ Claim, Fact-Checked,” *Vox* (Jan. 31, 2018), accessed at: <https://www.vox.com/2018/1/30/16953292/trump-war-on-coal-claim-fact-checked>.

²⁴See Mark Bowen, *Censoring Science: Inside the Political Attack on Dr. James Hansen and the Truth of Global Warming*, New York: Dutton, 2008.

Works from 2003-2007, referred to global warming as the greatest hoax ever perpetrated on the American people.²⁵ Inhofe gets the majority of his campaign contributions from oil and gas companies and is the second largest political recipient of that money.²⁶ Politicians like Trump, Bush, and Inhofe have access to, and sometimes control over, the media to shape the public narrative on climate change. Too often, this narrative is grounded in “alternative facts” and misinformation about climate change, which are suspiciously linked to corporate interests and money. In *Laudato Si'*, Pope Francis critiques this political and economic alliance (LS 26, 54), which often distorts the truth about climate change and prevents popular national and international action to address the issue.

Judge: Sources of Ethical Knowledge

Ecological conversion gives us the courage and insight to ask difficult questions about our current relationship with the environment and to use the sources of ethical knowledge to seek answers to those questions through judgment that guides human acts. When addressing ecology, ethical method may select all four sources of ethical knowledge and, to define human dignity in relation to climate change and to formulate and justify norms that facilitate its attainment, prioritize them in the following order, reason/science, experience, tradition, and scripture. This prioritization, of course, is not a general ranking of the importance of the sources of ethical knowledge but a ranking only for the particular issue of ecological ethics.

Ethical method must consult the natural sciences to gain a scientifically-informed perspective on the actual and projected threat of climate change. To repeat, there is indisputable scientific evidence²⁷ that climate change is occurring, that the actions of humans significantly contribute to it, and that, if nothing is done to address it, the consequences for humanity, especially for the poor in developing countries, will be catastrophic in terms of extreme weather patterns, famine, displacement, and violence. Experience

²⁵See Inhofe, *The Greatest Hoax: How the Global Warming Conspiracy Threatens Your Future*, Washington, DC: WND Books, 2012.

²⁶Miller, *God, Creation, and Climate Change*, 5.

²⁷See James Hansen, “Global Warming Twenty Years Later: Tipping Points Near” (June 23, 2008), accessed at: http://www.columbia.edu/~jeh1/2008/TwentyYearsLater_20080623.pdf; Peter T. Doran and Maggie Kendall Zimmerman, “Examining the Scientific Consensus on Climate Change,” *EOS, Transaction American Geophysical Union* 90/3 (2009): 22-23, accessed at: http://tigger.uic.edu/~pdoran/012009_Doran_final.pdf.

confirms the scientific evidence: widespread drought, famine, and starvation throughout Africa; drought, wildfires, and an increase in the number and severity of hurricanes in North America; more severe flooding in Asia. All of these events point to the devastating impact of climate change on local ecosystems and on millions of people.²⁸ Science, however, Pope Francis notes, cannot provide a complete explanation of life; it must be complemented with other sources of ethical knowledge (LS 199). Tradition in the form of recent Catholic teaching based on scientific data and experience affirms that global warming is a reality and calls for the international community, especially wealthier countries that are in economic situations to effect substantial reduction in greenhouse-gas emissions, to work towards reducing these emissions. A Report by the Working Group Commissioned by the Pontifical Academy of Sciences states the following on global warming:

We call on all people and nations to recognize the serious and potentially irreversible impacts of global warming caused by the anthropogenic emissions of greenhouse gases and other pollutants, and by changes in forests, wetlands, grasslands, and other land uses. We appeal to all nations to develop and implement, without delay, effective and fair policies to reduce the causes and impacts of climate change on communities and ecosystems.... By acting now, in the spirit of common but differentiated responsibility, we accept our duty to one another and to the stewardship of a planet blessed with the gift of life.²⁹

The sure evidence of science, experience, and tradition must be accepted, interpreted, prioritized, and integrated into the selection and interpretation of scripture, the fourth source of ethical knowledge, to discover its true understanding of the relation between humans and creation and to formulate and justify norms that facilitate attaining human dignity for all in creation. Fifty years ago, in a now-classic and prophetic article, Lynn White already recognized the ecological crisis and explored the interpretations of

²⁸ There is debate among scientists on whether we have adequate scientific evidence to determine a correlation or causation between global warming and more severe weather patterns. The debate focuses on the lack of collected data to scientifically substantiate the claim, not on the probability that climate change will lead to more severe weather patterns, which many scientists already accept. See "Forum: Is Extreme Weather Linked to Global Warming?" (June 2, 2011), accessed at: http://e360.yale.edu/feature/forum_is_extreme_weather_linked_to_global_warming/2411/.

²⁹ "Fate of Mountain Glaciers in the Anthropocene" (May 11, 2011), accessed at: http://catholicclimatecovenant.org/wp-content/uploads/2011/05/Pontifical-Academy-of-Sciences_Glacier_Report_050511_final.pdf.

the creation stories in Genesis that have, in part, led to the crisis.³⁰ *Laudato Si'* focuses on Genesis in its depiction of humans' relationship with the earth (LS 65-75).³¹ In the later, Priestly account of creation (Gen 1:1-2:4), God creates human beings on the sixth day and gives them "dominion (*radah*) over the fish of the sea, the birds of the air, and all the living things that crawl on earth" (Gen 1:28). The Hebrew verb *radah* can be interpreted in a strong sense as "subdue, rule over," or in a weaker sense as "govern." The strong sense of *radah* emphasizes humans' total dominion over creation and justifies exploitation and disregard for it.³² We see the consequences of this disregard in the current ecological crisis.

The strong sense of *radah*, Francis says, "has encouraged the unbridled exploitation of nature by painting [humans] as domineering and destructive by nature" (LS 67). He teaches that, according to the church, the strong sense is not the correct interpretation of *radah*. "The biblical texts are to be read in their context," he insists, "with an appropriate hermeneutic, recognizing that they tell us to 'till and keep' the garden of the world (cf. Gen 2:15). 'Tilling' refers to cultivating, ploughing or working, while 'keeping' means caring, protecting, overseeing and preserving. This implies a relationship of mutual responsibility between human beings and nature" (LS 67). The weaker sense of *radah* interprets it as situating humans in relationship with and caring for creation, emphasizing "responsible stewardship" (LS 166) over creation, though Francis prefers throughout *Laudato Si'* the term *care* to the term *stewardship*.³³ Care is a broader concept than stewardship. It includes human relationship with and care for the environment, but it also includes care for the neighbour, for the vulnerable, for poor indigenous communities, for health, and for the nobility of all human activity. Scientific evidence that proves the damage humans have done to the environment, the experiences of manifold peoples, and traditions that call for correcting past and lessening future damage all

³⁰Lynn White, "The Historical Roots of Our Ecological Crisis," *Science* 155 (10 March 1967) 1203-07.

³¹Though, as Brendan Byrne points out, Paul's letter to the Romans (at 9:18-22) could complement Genesis. See "A Pauline Complement to *Laudato Si'*," *Theological Studies* 77, 2 (2016) 308-27.

³²Daniel J. Harrington and James F. Keenan, *Jesus and Virtue Ethics: Building Bridges between New Testament Studies and Moral Theology*, Lanham, MD: Sheed and Ward, 2002, 185.

³³Kevin W. Irwin, *A Commentary on Laudato Si': Examining the Background, Contributions, Implementation, and Future of Pope Francis's Encyclical*, New York: Paulist, 2016, 119-20.

justify the weaker interpretation of *radah* over the strong interpretation in Genesis 1:26, 28.

Faithfully following Genesis, human dignity has to be defined in relationship with, not over and above, creation. Women and men throughout the world must recognize their dependence on creation for their very survival. Among the normative implications of this dependence is that humans must care for creation. What care for the environment means presently and concretely is a concerted effort to address the present climate crisis and reduce greenhouse-gas emissions that are endangering the very survival of humanity. The human dignity of all women and men is clearly facilitated to the extent that they respond to the current crisis; it is clearly frustrated to the extent that they do not respond to it.³⁴

In the case of climate change and ecological ethics, an inductive approach highlights the importance of the natural sciences for providing a factual assessment of the environmental situation. This factual assessment is to be prioritized as the point of departure for reflecting theologically on the environmental crisis and its ethical implications for human dignity and for formulating a normative response to the crisis. The contributions of the sciences to human knowledge and understanding of the environment are crucial for the ongoing ethical reflection to address challenges the sciences reveal. Contextual theology highlights the cultural, historical, contextual, and socio-economic challenges that confront attempts to respond to the crisis. The virtue of care will have very different normative implications in a country like the United States, which has the economic and technological resources to effect climate change nationally and internationally, compared to a country like Sudan, which has limited economic and technological resources to effect climate change. The ability to respond to particular ethical issues is always very much context dependent. The four sources of ethical knowledge combine to provide an evaluative perspective to judge the current ecological crisis in order to act responsibly and justly to address it. Moral conversion, the shift from self-satisfaction to values,

³⁴For theological reflections on environmental ethics, see Miller, *God, Creation, and Climate Change*; Cristina L.H. Traina, "Creating a Global Discourse in a Pluralistic World: Strategies from Environmental Ethics," *Christian Ethics: Problems and Prospects*, ed. Lisa Sowle Cahill and James F. Childress, Cleveland: Pilgrim Press, 1996, 250-64; William C. French, "Natural Law and Ecological Responsibility: Drawing on the Natural Law Tradition," *University of St. Thomas Law Journal* (2008) 12-36; and "With Radical Amazement: Ecology and the Recovery of Creation," in *Without Nature? A New Condition for Theology*, ed. David Albertson and Cabell King, New York: Fordham University Press, 2010, 54-79.

reveals different values and, in alliance with *Laudato Si'*, also different ecological virtues to help realize those values.

Act: A Virtuous Perspective

Moral conversion opens up a virtuous perspective for ecological conversion. The moral shift from self-satisfaction to value enables one, first, to see injustice and, then, to act justly and responsibly.³⁵ Focusing on the virtue of care, Pope Francis addresses the need to protect and preserve the value of human dignity, especially of the poor who suffer the most from any environmental change. Climate change and environmental pollution are two assaults on human values and cause numerous health hazards and millions of premature deaths across the world (LS 20). They also cause the ongoing extinction of plants and animals, the loss of which unbalances the ecosystem on which all life depends (LS 36). Francis highlights another vital value, the interdependence of all creation. “Because all creatures are connected, each must be cherished with love and respect, for all of us as living creatures are dependent on one another” (LS 42). When this connectedness is threatened, as it is currently threatened, humans can attempt to compensate for the imbalance through science and technology, but these interventions have other consequences on the ecological system, many of them unforeseen and deleterious. A just response to protect vital values must be two-fold. Humanity must immediately cease its assault on the environment through pollution and toxic waste to allow it to heal, and it must do so through scientific solutions that do not further destabilize an already unstable ecosystem. This requires local, national, and international cooperation to address complex issues, but each individual human being is called to embrace a simpler life of sound ecological virtue in the manner of Saint Francis of Assisi and Mahatma Gandhi, who famously invited all humans to “live simply so that all can simply live.”³⁶

“Only by cultivating sound virtues,” Francis asserts, “will people be able to make a selfless ecological commitment” (LS 211). Among the sound virtues found in a virtuous ecological perspective we name prudence, responsibility, courage, humility, honesty, care, faith, hope, love, solidarity, and reconciliation, all of which pervade *Laudato Si'*. Pope Francis has recourse to other virtues that complement conversion and highlight the radical response individuals and

³⁵Doran, “What Does Bernard Lonergan Mean,” 14; see *LS*, no. 123.

³⁶ See <https://naturallivingschool.com/2012/04/22/live-simply-so-others-may-simply-live-gandhi/>.

societies must take to address the crisis. He invites all Christians to respond in faith and humility.

Various convictions of our faith...can help us to enrich the meaning of this conversion. These include the awareness that each creature reflects something of God and has a message to convey to us, and the security that Christ has taken unto himself this material world and now, risen, is intimately present to each being, surrounding it with his affection and penetrating it with his light. Then too, there is the recognition that God created the world, writing into it an order and a dynamism that human beings have no right to ignore (LS 221).

We conclude by pointing out that by cultivating ecological conversion and its related sound ecological virtues we will be following the Psalmist's instruction: "Sing to the Lord a new song...Declare his glory among the nations, his marvelous works among all the peoples" (Ps 96:1-3).