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The Impact of *Laudato Si'* on the Paris Climate Agreement

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Foreword
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Abstract

Pope Francis addresses the intersecting concerns of environmental responsibility and authentic human development in the June 2015 papal encyclical *Laudato Si': On Care for Our Common Home*. Pope Francis extends Catholic environmental ethics to advocate for those at the margins of social consciousness who are most vulnerable to rapid environmental changes—the global poor and future generations. Pope Francis' active collaboration with leading experts in climate science and development economics and his perspective as the first non-European Pope strengthens his contributions to ethical discourse on inter- and intra-generational justice, the preferential option for the poor, carbon mitigation policies, and common but differentiated responsibilities in international climate negotiations. His advocacy efforts in 2015 anticipated critical convocations of world leaders, including the UN General Assembly's ratification of the Sustainable Development Goals in September 2015 and the UN Climate Change Conference in Paris in December 2015, culminating in a unanimous decision among 195 governments to adopt the Paris Agreement. Pope Francis' contribution to discourse on international climate policies and sustainable development objectives inspired political cooperation leading up to pivotal international agreements.

Foreword

This special LISD White Paper, “The Impact of *Laudato Si’* on The Paris Climate Agreement” by Irene Burke, Princeton University Class of 2016, is testimony to the brilliant analysis Princeton undergraduates undertake in their senior thesis research. The paper was prepared in this format within the Program on Religion, Diplomacy and International Relations (PORDIR), a program of the Liechtenstein Institute at Princeton University. Burke’s White Paper offers a glimpse of the extensive work and preparations within the Holy See in conjunction with expert advisors, international organizations in general, and the United Nations in particular to bring the Papal Encyclical *Laudato Si’* into being. The paper demonstrates convincingly how much Pope Francis himself is in fact and reality involved as key author of that encyclical, how closely he has worked personally with eminent advisors to get the document ready for the Paris environmental conference, and how much this represents his own conviction and concern about the environment, its potential damages, and our obligation to preserve it and enhance it for the generations to come.

There exists a deep religious dimension concerning the environment, nature, and humanity. Religion relates to the eternal. It deals with issues larger than life, with the spiritual, the omnipresent. Nature and natural life touches upon the eternal and transcends generations. According to the Book of Genesis, God created the world and its creatures. There is the eternal, the major, the unthinkable and unexplainable, something above human capabilities, providing for life—reflecting the cycle of birth, life, and death. In a sense dealing with nature hence entails an obligation to preserve the environment, to have and leave it for the next generations.

Pope Francis has extended the corpus of Catholic teachings on environmental and social ethics to develop a comprehensive and targeted appeal to care for all people affected by rapid environmental change, but specifically for all those disproportionately affected, namely the poor. The Pope has offered all his support to

raise awareness, educate, and to mobilize all to protect the environment and reduce, and eventually eliminate, all those activities which damage or degrade nature. Specifically, *Laudato Si’* also addresses the need to take action to immediately mitigate unsustainable practices causing climate change. According to Irene Burke, “it calls for ‘transformational changes in attitudes’ that include a reevaluation of humanity’s relationship towards nature.” It is indeed illuminating to read this great White Paper by a brilliant young scholar.

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Introduction

In the papal encyclical *Laudato Si': On Care for Our Common Home*, published in June 2015, Pope Francis (hereafter Francis) evaluates the intersecting concerns of environmental responsibility and economic development. Arguing, "We are not faced not with two separate crises... but rather with one complex crisis which is both social and environmental,"¹ Francis identifies human activity as the root cause of the interconnected deterioration of ecological systems and social relationships. He views science and the market as critical tools for understanding and improving the human condition, though he holds that technology and development must be consistent with strong ethical commitments to human dignity and the common good. Responding to intolerable ecological and social conditions and stymied international climate negotiations, Francis advocates for a radical paradigm shift that he calls a "global ecological conversion."² He introduces a model for political and economic decision-making called "integral ecology" that is consistent with established Catholic social ethics and yet develops a synthesis of distinct intellectual traditions and influences that is new to papal scholarship.

Francis advanced his moral perspective on climate and development policies in anticipation of several critical convocations of world leaders in 2015 addressing policies regarding climate change and economic development. These meetings include the Third International Conference on Financing for Development in July 2015, the meeting of United Nations General Assembly in September 2015 to consider sustainable development goals for the next fifteen years, and the United Nations Climate Change Conference in Paris convened in December 2015. Francis' moral commentary sparked debate and inspired political action leading up to pivotal international agreements culminating in the Paris Climate Change Agreement on December 12, 2015, the first universally binding international agree-

ment on environmental responsibility.

Catholic social teaching is a compendium of the Catholic Church's authoritative ethical positions that provides a framework of moral principles to interpret social issues and formulate possible directions in policy and civil society to respond to these problems. Papal encyclicals are the primary method of communicating the Church's social ethics. Beginning with Pope John XXIII's 1963 encyclical *Pacem in Terris*, which responded to the global concern of nuclear war, papal encyclicals have often been addressed to all people "of good will"³ in order to inspire a universal examination of conscience. Subsequent encyclicals including John Paul II's *Centesimus Annus* and Benedict XVI's *Caritas en Veritate* addressed themes of authentic human development and collective responsibility for environmental stewardship. Extending the Catholic discussion on environmental ethics and development that has been established in the corpus of papal teachings, Francis states in *Laudato Si'*, "Now, faced as we are with global environmental deterioration, I wish to address every person living on this planet... I would like to enter into dialogue with all people about our common home."⁴ The dialogue Francis calls for reflects not only the reception of his encyclical by Catholics and non-Catholics alike but also his collaboration with an interfaith and interdisciplinary coalition of advisors who he consulted, including leading climate scientists and development economists Paul Crutzen, Partha Dasgupta, Jeffrey Sachs, and H.J. Schellnhuber.

Laudato Si' exposes tensions in political thought and Catholic social ethics. Francis focuses his evaluation on the relationship between society and the environment, an area of dynamic development in Catholic social teaching under the pontificates of Pope John Paul II, from 1978 to 2005, and Pope Benedict XVI, from 2005 to 2013. During this period, the understanding of

1. Francis, *Encyclical Letter, Laudato Si': On Care for Our Common Home*, The Holy See, 2016, Web 24 September 2016, §139.

2. Francis, *Laudato Si'* §5.

3. John XXIII, *Encyclical Letter, Pacem in terris*, The Holy See, 1963, Web, 5 Jan. 2016, §1.

4. Francis, *Laudato Si'*, §3.

human dominion over the environment in the natural law tradition evolved into a more responsible and relational model of stewardship, a concept still grounded in the Catholic natural law tradition. Francis' model of integral ecology reinvigorates and extends Catholic ethical discourse on sustainability by addressing ecological concerns through the prism of care for those at the margins of social consciousness who are most

vulnerable to rapid environmental changes – the global poor and future generations. Although environmental ethics has a rich basis in Catholic social teaching, Francis evaluates these themes more comprehensively than his predecessors through his collaboration with leading experts in the fields of development economics and climate science and his moral perspective grounded in his experience as a leader of the Latin American Church.

Laudato Si' in Catholic Theology and Social Ethics

The Church has integrated the Catholic understanding of natural justice with its concerns for environmental degradation since the inception of its social teaching on the environment. The natural law tradition, grounded in the writings of Saint Thomas Aquinas, is the moral foundation for the consistent emphasis placed on the condition of the human person in the treatment of ecological responsibility in Catholic social teaching. Benedict XVI, stated, “Our duties toward the environment flow from our duties toward the person,”⁵ highlighting the axiom of the inherent dignity of human being that is the pivot point for Catholic ethical discourse. All matters of social concern in modern Church teaching are evaluated through the lens of the Church's duty to safeguard human dignity. Catholic environmental ethics is an application of social values based in the natural law tradition that the Church considers to be universally normative.

The natural law tradition emphasizes reasoned reflection on human experience to realize universal precepts of justice and fairness. Natural law theory is best understood as a process rather than a set of rules. Through the application of reason, natural law theorists hold that human agents can discern divine will for temporal conditions. This reasoned discernment should be consistent with revelation. The Catholic natural law tradition is

derived from the writings of St. Thomas Aquinas, who originated a philosophical tradition that is referred to as Thomist or scholastic thought. The Thomist natural law tradition that underpins Catholic social ethics is a canon of moral principles and universal claims that follow from a discernment process guided by reason.

Catholic social teaching, referring to authoritative Church documents on social ethics such as papal encyclicals, can be broken into two broad periods in the Church's intellectual history. Catholic social teaching from the promulgation of *Rerum Novarum* by Pope Leo XIII in 1891 to the documents of the Second Vatican Council, convened in 1962, was a commentary on modern conditions and institutions grounded nearly exclusively in neo-scholastic thought.⁶ Church teaching was promulgated in a hierarchical manner, and Catholic ethics was synonymous with Catholic social teaching.⁷ Theological currents in the first half of the twentieth century, led by theologians including Karl Rahner and Edward Schillebeeckx, promoted the recognition of political and cultural pluralism. The universally normative precepts of the natural law tradition were criticized as too static for a diverse and dynami-

5. Benedict XVI, “Message of His Holiness Pope Benedict XVI for the Celebration of the World Day of Peace,” The Holy See, January 1, 2010, Web 20 Jan. 2016.

6. David Hollenbach, S.J. “Commentary on *Gaudium et spes* (Pastoral Constitution for the Church in the Modern World),” *Modern Catholic Social Teaching: Commentaries & Interpretations*, Kenneth R. Himes, et al., (Washington: Georgetown University Press, 2004), p. 269.

7. *Ibid.*, p. 269.

cally changing world.⁸ The second broad period of Catholic social teaching dates from the Second Vatican Council to present and incorporates perspectives that are sometimes in tension with the natural law tradition, which remains the moral foundation of Catholic social ethics. Broadly, these theological traditions that revised natural law are termed personalist for the emphasis placed upon the Kantian understanding of the human person as an end and never a means to an end. Modern Catholic social teaching promulgated after the Second Vatican Council encompasses foundational tenets of natural law theory, including Aquinas' axioms of inherent human dignity, subsidiarity, solidarity, and the common good, as well as revisionary perspectives.

Catholic ethical discourse on the environment and negative social conditions that ecological damage engenders or exacerbates dates from 1972 to present, a period coincident with the development of theologies and philosophies that were revisionary of the Catholic natural law tradition. As Catholic teaching on the relationship between humanity and the natural world progressed from an understanding of dominion to the more relational model of stewardship, papal teachings on social and environmental ethics continued to rely heavily on the natural law tradition while incorporat-

8. Peter Steinfels, "Edward Schillebeeckx, Catholic Theologian, Dies at 95," *The New York Times*, January 16, 2010. Web March 30, 2016.

ing principles of personalist ethics. In *Laudato Si'* Francis reevaluates the concept of stewardship, emphasizing the close connection between humanity and the natural environment that should be characterized by care. He takes a step beyond defending the dignity of the human person in addressing ecological concerns, as his predecessors established. He places particular emphasis on caring for the socially and politically excluded poor and often disregarded future generations.

In articulating his model of integral ecology, Francis extends Catholic environmental ethics to advocate for protection and care for those at the margins of social consciousness, the global poor and future generations. In this model, proper social relationships are premised on human connectivity and entail protection of others and the natural environment. Integral ecology encompasses the concepts of natural ecology, human ecology, which John Paul II first articulated and Benedict XVI developed, and integral human development, which Paul VI originated in Catholic social teaching. With the model of integral ecology, Francis connects social relationships, environmental protection, and sustainable development. In propounding an ethic of care for the environment and the populations most vulnerable to climate shocks, Francis grounds his arguments in the Catholic natural law tradition, as it is expressed in Catholic social teaching, and develops previous papal teaching by reconciling it with a new synthesis of twentieth-century personalist philosophies.

The Contributions of Pope Francis' Advisors

Francis addressed the historic conflict between science and religion, highlighting the importance of scientific and technological development counterbalanced by rigorous ethical evaluation. While Francis has insisted emphatically that *Laudato Si'* primarily addresses questions of social justice, poverty is linked in a myriad of ways to rapidly changing environmental conditions. Prominent scientific communities, including the journals *Nature* and *Science* have engaged directly with the themes of the encyclical, a response Edenhofer, Flas-

chland, and Knopf called "unprecedented in the Western history of dialogue between religion and science."⁹ Francis' call for dialogue between science and religion is a reconciliation in the shadow of a turbulent history and an appeal for productive collaboration.

9. Ottmar Edenhofer, Christian Flachland and Brigitte Knopf, "Science and Religion in Dialogue over the Global Commons," *Nature Climate Change*, Vol. 5. October 2015, p. 907.

The empirical content of the encyclical is underpinned by the contributions from experts of diverse faith backgrounds, nationalities, and ethnicities, who were selected as advisors to the Pope on the basis of professional merit alone. In a statement entitled *Climate Change and the Common Good*, published under the auspices of the Pontifical Academies of Sciences and Social Sciences in April 2015, Francis' advisors delineated the environmental and economic analysis contained in *Laudato Si'*. The authors of this statement include Partha Dasgupta, Paul Crutzen, Jeffrey Sachs, and Hans Joachim Schellnhuber. Evaluating the destructive outcomes of current consumption patterns and the use of inappropriate technology for the world's poorest three billion people and for future generations, the statement calls for immediate mitigation of unsustainable practices causally linked to climate change. The document warns that humanity must take action to avert the serious risk that the earth will cross natural thresholds and tipping points. It calls for "transformational changes in attitudes"¹⁰ that include a reevaluation of humanity's relationship towards nature, "and thereby, towards ourselves,"¹¹ as well as a greater sense of global solidarity beyond national boundaries and personal interests with an orientation to the common good.¹² The interface of technology and policy is the crux of the solution to transitioning away from fossil fuels. However, solutions will only be implemented effectively if humanity develops a sustainable relationship with the natural world, which the statement argues would require a "moral revolution"¹³ spearheaded by religious institutions.

The Pontifical Academy's statement sets out necessary steps of sustainable development that parallel the United Nation's Sustainable Development Goals for 2015. The objectives of sustainable development include, "reaching a level and sustainable population; just consumption rates...; the empowerment of women and children everywhere...; and the development of many new and more sustainable technologies."¹⁴ The mitiga-

tion of environmental change and sustainable development are questions of both intra-generational justice, globally as well as intergenerational justice. Those most disproportionately affected today are the world's poorest populations who are not responsible for current conditions, and those most disproportionately affected in the future will have had no agency in creating changed environmental conditions. Francis advocates for increased attention paid to the needs of those who are socially excluded or politically disregarded – the poor, particularly the poorest three billion people, and future generations.

This position is moral as well as pragmatic. On a forward-looking basis, a 2016 World Bank study predicts that without rapid and inclusive development adjusted for environmental changes, climate-related shocks will force 100 million people into extreme poverty by 2030 and slow poverty reduction.¹⁵ This study demonstrates the future effects of climate change on health, agriculture, livelihood, and geography will be causes of poverty. The magnitude of these effects varies greatly across regions, and disasters have been shown to be more likely to affect the poor than people who are not poor.¹⁶ The parallel that Francis draws between the coincident breakdown of environmental systems and social bonds is more than metaphorical. As damaged ecological systems can no longer support human communities, which has already been shown clearly with movement of the Intertropical Convergence Zone (ITCZ) causing drought in the Horn of Africa and sea level rise that will permanently displace millions of Bangladeshi citizens, human disruption of natural systems will have disproportionate economic and social effects on those who do not have the means to adapt.

10. The Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences, "Climate Change and the Common Good: A Statement of the Problem and the Demand for Transformative Solutions," Pontifica Academia Scientiarum, April 2015.

11. Ibid.

12. Ibid.

13. Ibid.

14. The Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences, "Climate Change and the Common Good:

A Statement of the Problem and the Demand for Transformative Solutions," Pontifica Academia Scientiarum, April 2015.

15. Stéphane Hallegatte, et. al., *Shock Waves: Managing the Impacts of Climate Change on Poverty*, (Washington DC: World Bank Group, 2016), p. 2.

16. Ibid., p. 8 Figure 0.6.

The Preferential Option for the Poor and Global Climate Policy

Francis' intervention in contemporary political and economic analysis is characterized by a consistent concern for the unequal power relations between the global North and South. A Vatican official reported, "Francis wants to break down the wall between the North and the South of the world, just as John Paul II wanted to bring down the Berlin Wall between East and West. Opposing the 'globalization of indifference' is the main geopolitical and spiritual mission of the poor Church for the poor, the new 'cold war' that he must win over selfishness."¹⁷ Francis, consistent with established social teaching, advances discourse on the social and ecological impact of structural inequalities between affluent nations and the global poor.

The preferential option for the poor, a distinctively Latin American teaching that God's love is universal but first demonstrated to the poor, guides Francis' policy analysis and recommendations in *Laudato Si'*. This teaching promotes the integral development of the human person and the practice of social justice.¹⁸ Francis references the Aparecida Document of the Latin American Church in *Laudato Si'* to establish the universal Church's position in global climate negotiations. The Aparecida Document, produced at the Fifth Latin American Episcopal Conference (CELAM) in Aparecida, Brazil, in May 2007, affirms the Latin American Church's commitment to the preferential option for the poor, urging Church leaders to "ratify and energize the preferential option for the poor... it should permeate all our pastoral structures and realities."¹⁹ Francis, then Cardinal Jorge Bergoglio, chaired the committee that drafted the final document. In *Laudato Si'* Francis establishes the preferential option of the poor as

an "ethical imperative essential for attaining the common good."²⁰ Francis argues, "Strategies for a solution demand an integrated approach to combating poverty, restoring dignity to the excluded, and at the same time protecting nature."²¹ In Catholic social teaching, the perspective and interests of the poor must be prioritized in responding to political and economic injustices.

Francis' worldview as a leader of the Latin American Church leads him to a stance on climate policy than is different from that of other advocates for responses to the harmful effects of climate change. Francis categorically rejects the commodification of carbon on the grounds that it perpetuates structural inequality between rich and poor nations, a perspective that reflects his commitment to the preferential option for the poor. Francis writes, "The strategy of buying and selling 'carbon credits' can lead to a new form of speculation... in no way does it allow for the radical change which present circumstances require. Rather, it may simply become a ploy which permits maintaining the excessive consumption of some countries and sectors."²² Rather than endorsing a market mechanism to limit carbon consumption, Francis advocates for carbon budgeting, which is a mitigation measure to limit energy use. He refers to the massive "ecological debt" that affluent countries owe poor countries and states, "the developed countries ought to help pay this debt by significantly limiting their consumption of non-renewable energy and by assisting poorer countries to support policies and programs of sustainable development."²³ Francis' rejection of carbon pricing diverges from the views of his advisors, including Partha Dasgupta and Ottomar Edenhofer.

From the vantage point of economic theory, climate change is a market failure. William Nordhaus, the Ster-

17. Elisabetta Piqué, *Pope Francis: Life and Revolution, a Biography of Jorge Bergoglio*, (Chicago: Jesuit Press, 2013), p. 236.

18. Rafael Luciani and Félix Palazzi, "A Rooted Vision: The Latin American Origins of Pope Francis' Theology," *America Magazine*, February 1, 2016, Web 2 March 2016.

19. Fifth General Council of the Bishops of Latin America and the Caribbean (CELAM), *Aparecida Concluding Document*, 13-31 May 2007 §396.

20. Francis, *Laudato Si'* §158.

21. *Ibid.*, §139.

22. Francis, *Laudato Si'* §171.

23. Francis, *Laudato Si'* §52.

ling Professor of Economics at Yale University, criticizes Francis' position, writing, "environmental degradation is the result of distorted market signals that put too low a price on harmful environmental effects" rather than "unethical individual behavior such as consumerism or cowardice, bad conscience, or excessive profiteering."²⁴ Nordhaus identifies Francis' view on carbon pricing as a critical shortcoming of the encyclical, stating, "He has missed an unique opportunity to endorse one of the two crucial elements of an effective strategy for slowing climate change." Nordhaus calls carbon pricing "the only practical policy tool we have to bend down the dangerous curves of climate change and the damages they cause."²⁵ Historically, carbon emissions were treated as negative externalities, which Partha Dasgupta defines as "the *unaccounted* for consequences for others."²⁶ Natural capital, which is the use of the natural environment, was not priced, and as a result, was overused and misused.

Unsustainable practices and carbon emissions damage natural capital, a harm that has acute social impacts unevenly distributed among the world's population and future generations. Reduced agricultural output, natural disasters, and sea level rise are among the most formidable challenges that face societies currently and in the future. Dasgupta argues that the under-pricing of natural capital, or the use of the environment, results from, "An absence of a tight set of property rights... 'Green Taxes' would be a way to close the difference."²⁷ Nordhaus identifies market regulation of carbon emissions through carbon taxes or cap-and-trade policies as effective strategies for pricing emissions. The two market-based models of carbon pricing have, assuming equal institutional capacity, an equal outcome in terms of limiting emissions. Carbon taxes create a negative incentive to reduce carbon use. Cap-and-trade policies limit emissions at the outset, making carbon use a scarce good, and thereafter prices the scarce resource by auctioning carbon permits. Pricing scarce carbon allowances reduces pollution overall and allocates car-

bon emissions to serve the most efficient uses.²⁸ Carbon taxes have been shown to be more effective in practice, however, both taxes and cap-and-trade policies are defensible strategies for reducing environmental damage by making the use of natural resources more expensive. Refuting the view that "current economics and technology will solve all environmental problems," Francis holds that "by itself the market cannot guarantee integral human development and social inclusion."²⁹ Francis argues that dominant technological and political paradigms in which unsustainable system are embedded cannot also be used to solve the crises they created. In an effort to reorient society to responsibility and long-term care for the natural environment, he identifies the climate and the atmosphere as common goods "belonging to all and meant for all."³⁰ He also identifies the oceans and other natural resources as common goods that government must protect.³¹ This view of the environment as a global commons is consistent with the universal access principle in Catholic social teaching, which is the understanding that the earth was given to humankind in common and intended to benefit all, regardless of titles of ownership.

Many governments contest the understanding of environmental responsibility as a global commons problem. The adoption of this label would require political commitments to protect the poor from climate change and the equitable sharing the costs of mitigation globally.³² In the 2014 IPCC Working Group III Fifth Assessment report, policymakers' opposition to this classification is reflected in a revision in which the reference to climate as a "global commons" was placed in a footnote, and the term was qualified as having "no specific implications for legal arrangements or for particular criteria regarding effort sharing."³³ While understanding

24. William Nordhaus, "The Pope & The Market," *New York Review of Books*, 8 October 2015. Web 28 Sept. 2015.

25. Ibid.

26. Partha Dasgupta, "Impediments to Sustainable Development: Externalities in Human-Nature Exchanges," Pontifical Academy of Social Sciences, Acta 18. P. 8

27. Partha Dasgupta, "Impediments to Sustainable Development: Externalities in Human-Nature Exchanges," Pontifical Academy of Social Sciences, Acta 18. p. 7.

28. William Nordhaus, "The Pope & The Market," *New York Review of Books*, 8 October 2015. Web 28 Sept. 2015.

29. Francis, *Laudato Si'* §109.

30. Francis, *Laudato Si'* §23

31. Francis, *Laudato Si'* §174

32. Ottmar Edenhofer, Christian Flachland and Brigitte Knopf, "Science and Religion in Dialogue over the Global Commons," *Nature Climate Change*, Vol. 5. October 2015.

33. IPCC Working Group III Fifth Assessment report quoted in Ottmar Edenhofer, Christian Flachland and Brigitte Knopf, "Science and Religion in Dialogue over the Global Commons," *Nature Climate Change*, Vol. 5. October 2015.

the natural environment as a common good is not antithetical to the functioning of a market economy or political governance, it challenges established institu-

tional paradigms and burden-sharing arrangements of environmental degradation and its social impacts.

The CDRRC Principle and the Paris Climate Change Agreement

International climate burden-sharing arrangements are premised on the assumption that countries will have to make sacrifices for a greater social benefit overall. There is an overwhelming expert consensus on the reality of climate change and the measures that must be implemented to prevent the most adverse effects of carbon emissions. The consensus vanishes, however, when confronting the problem of agency in shouldering the burdens of mitigation and adaptation. Ultimately, per capita allocation is accepted widely as the most equitable arrangement of burden sharing, though this vision is not feasible in the short-term.³⁴ Not to impede development in developing countries, all parties in international climate negotiations agree that a uniform percentage reduction in emissions is neither fair nor realistic. Vigorous debate on questions of how to reduce carbon intensity and who is best positioned or most responsible for making concessions has stymied negotiations, particularly in the six years following the failed Copenhagen Accord that led up the Paris Climate Change Agreement in December 2015.

A critical safeguard to ensuring that all parties have a voice in climate negotiations is the principle of common but differentiated responsibilities and respective capabilities (CDRRC). The Framework Convention on Climate Change (FCCC) in 1992 originated the CDRRC principle reflected in the burden-sharing arrangements of the 1992 Kyoto Protocol. Under this principle, the 1992 Convention established that developed countries were responsible for leading efforts to reduce carbon emissions, and developing countries

had an open-ended time frame to contribute. As developed countries have resisted the burdens assigned to them, the original intention of the CDRRC principle has been diluted. Many developed countries hold that the CDRRC principle must evolve with changing economic realities.³⁵ Most of the recent growth in global emissions originates from emerging economies. Developing countries emit half of global carbon emissions, and future emissions are predicted to increase faster than developed countries' emissions.³⁶ In establishing the relative responsibilities among nations, recent agreements reflect increased support for autonomous discretion of development level and self-regulation of mitigation efforts in light of contemporary circumstances and capabilities.

Economic development in China and India, among other emerging economies, is fueled by energy consumption of coal, oil, and methane. In international diplomacy, emerging economies prioritize retaining autonomy over energy consumption decisions. This need is two-fold, at least; energy is both a crucial input of production in industrialized economies and fuels consumption patterns for electricity, heat, cooling, and transportation, among other uses.³⁷ Sacrifices will have to be made if economies transition to more sustainable practices. Standing with developing coun-

34. Shoibal Chakravarty et. al, "Sharing Global CO2 Emission Reductions Among One Billion High Emitters," Proceedings of the National Academy of Sciences 106 (2009): 11884-11888, Web 4 November 2016.

35. Lavanya Rajamani, "The Papal Encyclical & the Role of Common but Differentiated Responsibilities in the International Climate Change Negotiations," 109 *AJIL Unbound* 142 (2015). Web 23 January 2016.

36. Shoibal Chakravarty et. al, "Sharing Global CO2 Emission Reductions Among One Billion High Emitters," Proceedings of the National Academy of Sciences 106 (2009): 11884-11888, Web 4 November 2016.

37. Navroz Dubash, "A Climate More Congenial to India," *The Hindu*, December 16, 2015, Web 16 March 2016.

tries in climate negotiations, Francis does not endorse policies that would severely hinder economic growth. Rather, he advocates for sustainable development practices, which he echoes John Paul II and Benedict XVI in calling “authentic human development,”³⁸ that integrate a concern for material well-being with respect for the dignity of humanity and the preservation of natural resources.

In *Laudato Si'* and in his speeches to the United Nations and the United States Congress in 2015, Francis directly addressed the divide between developed and developing countries, a classification that the rapid growth of emerging economies, led by China and India, has complicated in recent years. Francis supports an interpretation of the CBDRRC principle by which different contributions to environmental harm, rather than different capacities of states, is the basis for differentiated responsibility for climate change.³⁹ He supports the view that developed nations must shoulder certain burdens based on historical “ecological debt” incurred relative to developing nations. This “ecological debt” that exists between the global north and south is a result of the “disproportionate use of natural resources by certain countries over long periods of time”⁴⁰ and “a system of commercial relations and ownership which is structurally perverse.”⁴¹ Developing countries are inhibited from meeting vital needs as they “continue to fuel the development of richer countries at the cost of their own present and future.”⁴² He holds that developing countries are trapped in financial debt whereas developed countries owe an ecological debt.

Wealthy countries have historically spearheaded international environmental agreements, and developing countries are consistently concerned that curbing industrialization will undermine economic growth, and compliance to international agreements will incur a high and unfair cost. Countries that have already developed, some long before climate change and its effects were perceived and studied, view developing countries as the most capable of limiting emissions.

Countries that are developing today contributed little to the problem historically and view developed countries as the responsible agents. Assigning responsibility for climate mitigation is a policy conundrum because the countries that have the ability to pay have polluted already, while those who can make the most marginal gains are the poorest and perhaps the least deserving of shouldering this burden.

In December 2015 the Paris Climate Change Agreement broke the diplomatic impasse between developed and developing countries over climate responsibilities. The Paris Agreement addressed the complexity of the classification of developed and developing countries. The categories remained in place, however, they better reflect the unique position of emerging economies.⁴³ The Paris Agreement endorsed an approach for a greater degree of self-determination for emerging economies. Developing countries evaluate the threshold for development rather than accepting a static classification. Additionally, responsibilities in the areas of mitigation, adaptation, finance, and transparency were articulated.⁴⁴ In climate mitigation policies, developed countries have agreed to reduce emissions on an economy-wide scale, whereas developing countries have a longer timeline to grow economically without limiting energy consumption. Furthermore, developed countries are expected to aid developing countries through climate financing, while there is a correlative obligation that developing countries will cooperate on mitigation efforts.

The collaborative relationships of mutual obligations and expectations that were established in the Paris Agreement reflect a more productive tone in the evolution of global climate negotiations. However, this interdependence between developed and developing countries reflects a delicate balance of powers that may be used to extract policy outcomes.⁴⁵ The document lacks provisions for human rights, an omission that Catholic organizations view as a critical failure in responding to the needs of the world’s most vulnerable populations threatened by environmental change.⁴⁶ Francis

38. Francis, *Laudato Si'* §5.

39. Lavanya Rajamani, “The Papal Encyclical & the Role of Common but Differentiated Responsibilities in the International Climate Change Negotiations,” 109 *AJIL Unbound* 142 (2015). Web 23 January 2016.

40. Francis, *Laudato Si'* §51

41. Francis, *Laudato Si'* §52

42. Francis, *Laudato Si'* §52

43. Navroz Dubash, “A Climate More Congenial to India,” *The Hindu*, December 16, 2015, Web 16 March 2016.

44. Ibid.

45. Ibid.

46. Brian Roewe, “Nearly 200 nations adopt historic Paris Agreement, set path for action on climate change,” *National Catholic Reporter*, December 12, 2015, Web 30 June 2016.

responded to the Paris Agreement stating, “The climate conference has just ended in Paris with an agreement that many describe as historic... Implementing it will require unanimous commitment and generous involvement by everyone... I urge the international community in its entirety, to carefully follow the road ahead, and with an ever-growing sense of solidarity.”⁴⁷ Francis’ paradigm of integral ecology fosters social and political cooperation to promote authentic human development in tandem with environmental responsibility. These connections are bound tightly. As Nicholas Stern stated, “If we fail in one, we fail in the other.”⁴⁸ In *Laudato Si’* Francis presents a hopeful vision and guidance for realizing lasting solutions, which entail implementation and commitment to the promises made in the Paris Agreement.

47. Francis quoted “Pope Francis: Climate Accord Must Help Poor,” *The Local*, 13 December 2015, Web. 20 March, 2016.

48. Nicholas Stern quoted in Ottmar Edenhofer, Christian Flachland and Brigitte Knopf, “Science and Religion in Dialogue over the Global Commons,” *Nature Climate Change*. Vol. 5. October 2015.

Francis has extended the corpus of Catholic teachings on environmental and social ethics to develop a comprehensive and targeted appeal to care for all people affected by rapid environmental change but especially for people most disproportionately affected - the poor and future generations. Francis’ active collaboration with leading experts in climate science and development economics and his perspective as the first non-European Pope strengthens his contribution to discourse on intergenerational and intra-generational justice, the preferential option for the poor, carbon mitigation, and common but differentiated responsibilities in international climate negotiations. His model of integral ecology had timely implications for international agreements on economic development and environmental responsibility, though the encyclical will have an impact that extends beyond the policy decisions of 2015. *Laudato Si’* is a pivotal contribution to the Catholic tradition and environmental ethics that relates the Church more fully to contemporary society and bends the arc of ethical discourse on inherently connected ecological and social concerns.

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