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The Ecological Ethics and Systemic Thought of Pope Francis

Fritjof Capra

The title of the Pope's new encyclical, *Laudato Si' (Praise Be to You)*, dated May 24, 2015, and published in eight languages on June 18, is an Umbrian phrase from the famous religious song "Canticle of the Sun" by Saint Francis of Assisi, the patron saint of ecology. The encyclical's subtitle, "On Care for our Common Home," refers to the Earth as *oikos* ("home"), the Greek root of the word "ecology," while caring is a practice characteristic of the liberation theology of Latin America.

The text of the Papal encyclical, one year in the making and written with the help of a large team of theologians, philosophers, and scientists, reveals not only the great moral authority of Pope Francis, but also his complete familiarity with many concepts and ideas in contemporary science.

During the last thirty years, a new conception of life has emerged at the forefront of science — a unifying view that integrates life's biological, cognitive, social, and ecological dimensions. At the very core of this new understanding of life we find a profound change of metaphors: from seeing the world as a machine to understanding it as a network. This new science of life is now being developed by outstanding researchers and their teams around the world. Their concepts and ideas are integrated into a grand synthesis in *The Systems View of Life*, a textbook I coauthored with Pier Luigi Luisi and which was published in 2014 by Cambridge University Press.

We call the new conception of life a "systems view" because it involves a new kind of thinking — thinking in terms of connectedness, relationships, patterns, and context. In science, this way of thinking is known as "systems thinking," or "systemic thinking," because it is crucial to understanding living systems of any kind — living organisms, social systems, or ecosystems.

The systems view of life will be the conceptual basis of my analysis of the Pope's encyclical in this essay. I will show that the radical ethics championed by Pope Francis, expressed sometimes, but not always, in theological language, is essentially the ethics of deep ecology, the philosophical school founded by Arne Naess in the 1970s. I will also show with many examples that Pope Francis reveals himself in *Laudato Si'* as a truly systemic thinker.

Ethics and the Common Good

From a systems perspective, ethical behavior is always related to community; it is behavior for the common good. In today's world, there are two relevant communities to which we all belong. We are all members of humanity, and we all belong to the Earth Household, the global biosphere. As members of the human community, our behavior should reflect a respect of human dignity and basic human rights. As members of the Earth Household, our "common home," we should not interfere with nature's inherent ability to sustain life. This is the essential meaning of ecological sustainability.

The defining characteristic of deep ecology is a shift from anthropocentric (human-centered) values to ecocentric (earth-centered) values. It is a worldview that acknowledges the inherent value of non-human life, recognizing that all living beings are members of ecological communities, bound together in networks of interdependencies. All these considerations, and the radically new system of ethics they imply, are clearly expressed in the Papal encyclical, as shown in the following passages:

156. Human ecology is inseparable from the notion of the common good, a central and unifying principle of social ethics.

95. The natural environment is a collective good, the patrimony of all humanity and the responsibility of everyone. If we make something our own, it is only to administer it for the good of all.

157. Society as a whole, and the state in particular, are obliged to defend and promote the common good.

5. Authentic human development has a moral character. It presumes full respect for the human person, but it must also be concerned for the world around us and "take into account the nature of each being and of its mutual connection in an ordered system."

33. It is not enough...to think of different species merely as potential "resources" to be exploited, while overlooking the fact that they have value in themselves.... Because of us, thousands of species will no longer give glory to God by their very existence, nor convey their message to us. We have no such right.

42. 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.

159. The notion of the common good also extends to future generations. The global economic crises have made painfully obvious the detrimental effects of disregarding our common destiny, which cannot exclude those who come after us.... We can no longer speak of sustainable development apart from intergenerational solidarity....

Intergenerational solidarity is not optional, but rather a basic question of justice, since the world we have received also belongs to those who will follow us.

162. Our difficulty in taking up this challenge seriously has much to do with an ethical and cultural decline which has accompanied the deterioration of the environment.

The values of deep ecology and their implications for building a just, sustainable, and peaceful world are elaborated in terms of sixteen ethical principles in the Earth Charter, a unique document mentioned by Pope Francis explicitly as a source of inspiration:

207. The Earth Charter asked us to leave behind a period of self-destruction and make a new start, but we have not as yet developed a universal awareness needed to achieve this. Here, I would echo that courageous challenge: “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.”

Science and Religion

It is impressive that throughout the document, Pope Francis uses contemporary scientific language with complete ease. Technical terms like “paradigm,” “reductionism,” “microorganisms,” “subatomic particles,” “quantum leap,” etc. appear again and again. To cite just one example, in paragraph 18 the Pope notes the contrast between the hectic pace of modern life and the much slower pace of evolution:

18. Although change is part of the working of complex systems, the speed with which human activity has developed contrasts with the naturally slow pace of biological evolution.

In view of the wide-spread questioning of evolution by Christian fundamentalists, especially in the United States, the Pope’s matter-of-fact reference to biological evolution, without any need for further comments, is truly remarkable. In fact, Pope Francis states at the outset of his analysis of the state of the world that it is based on solid science:

15. I will begin by briefly reviewing several aspects of the present ecological crisis, with the aim of drawing on the results of the best scientific research available today, letting them touch us deeply and provide a concrete foundation for the ethical and spiritual itinerary that follows.

In the history of Christianity, theological statements about the nature of the world, or about human nature, were often considered as literal truths, and any attempt to question or modify them was deemed heretical. This rigid position of the Church led to the well-known conflicts

between science and fundamentalist Christianity, which have continued to the present day. In these conflicts, antagonistic positions are often taken on by fundamentalists on both sides who fail to keep in mind the limited and approximate nature of all scientific theories, on the one hand, and the metaphorical and symbolic nature of the language in religious scriptures, on the other. Pope Francis seems to be well aware of this problem, and explicitly emphasizes the symbolic nature of religious language:

66. The creation accounts in the book of Genesis contain, in their own symbolic and narrative language, profound teachings about human existence and its historical reality.

In fact, Francis uses religious language mainly in connection with ethics, arguing that caring for the common good is valuable whether or not it is motivated by religious faith:

199. It would be quite simplistic to think that ethical principles present themselves purely in the abstract, detached from any context. Nor does the fact that they may be couched in religious language detract from their value in public debate. The ethical principles capable of being apprehended by reason can always reappear in different guise and find expression in a variety of languages, including religious language.

“Integral Ecology”

The systems view of life, integrating life’s biological, cognitive, social, and ecological dimensions, is implicit in the conceptual framework of *Laudato Si’*. The Pope states explicitly that solving our global problems requires a new way of thinking, and he makes clear that what he has in mind is thinking in terms of connectedness and relationships — in other words, systemic thinking:

215. Our efforts at education will be inadequate and ineffectual unless we strive to promote a new way of thinking about human beings, life, society and our relationship with nature.

79. In this universe, shaped by open and intercommunicating systems, we can discern countless forms of relationship and participation.

138. It cannot be emphasized enough how everything is interconnected. Time and space are not independent of one another, and not even atoms or subatomic particles can be considered in isolation.

Pope Francis uses the term “integral ecology” to refer to the systemic approach, and he emphasizes especially the interdependence of ecological and social issues, as well as the need to respect and honor local, indigenous cultures:

137. Since everything is closely interrelated, and today's problems call for a vision capable of taking into account every aspect of the global crisis, I suggest that we now consider some elements of an *integral ecology*, one which clearly respects its human and social dimensions.

49. Today...we have to realize that a true ecological approach *always* becomes a social approach; it must integrate questions of justice in debates on the environment, so as to hear *both the cry of the earth and the cry of the poor*.

143. Together with the patrimony of nature, there is also an historic, artistic and cultural patrimony which is likewise under threat... Ecology, then, also involves protecting the cultural treasures of humanity in the broadest sense. More specifically, it calls for greater attention to local cultures.

146. In this sense, it is essential to show special care for indigenous communities and their cultural traditions. They are not merely one minority among others, but should be the principal dialogue partners, especially when large projects affecting their land are proposed.

In his encyclical, the Pope not only emphasizes the values and ethics of deep ecology but also shows his "ecological literacy" — his understanding of the principles of organization of nature's ecosystems — as, for example, in the following passages.

34. It may well disturb us to learn of the extinction of mammals or birds, since they are more visible. But the good functioning of ecosystems also requires fungi, algae, worms, insects, reptiles and an innumerable variety of microorganisms.

22. It is hard for us to accept that the way natural ecosystems work is exemplary: plants synthesize nutrients which feed herbivores; these in turn become food for carnivores, which produce significant quantities of organic waste which give rise to new generations of plants.

140. Although we are often not aware of it, we depend on these [ecosystems] for our own existence. We need only recall how ecosystems interact in dispersing carbon dioxide, purifying water, controlling illnesses and epidemics, forming soil, breaking down waste, and in many other ways which we overlook or simply do not know about... So, when we speak of "sustainable use," consideration must always be given to each ecosystem's regenerative ability in its different areas and aspects.

The State of the World

The encyclical is composed of six chapters. In the first chapter, Pope Francis presents his

assessment of the state of the world — “what is happening to our common home,” as he puts it. Today, there is a broad consensus among scholars, community leaders, and activists that the major problems of our time — energy, environment, climate change, inequity, violence, and war — cannot be understood in isolation. They are systemic problems, which means that they are all interconnected and interdependent. Pope Francis fully agrees with this fundamental insight:

61. The world’s problems cannot be analyzed or explained in isolation.

139. We are faced not with two separate crises, one environmental and the other social, but rather with one complex crisis which is both social and environmental.

175. The same mindset which stands in the way of making radical decisions to reverse the trend of global warming also stands in the way of achieving the goal of eliminating poverty.

The fact that the major problems of our time are systemic problems implies that they require corresponding systemic solutions — solutions that do not solve any problem in isolation but deal with it within the context of other related problems. Unfortunately, this is not understood by our political and corporate leaders, most of whom are unable to “connect the dots,” to use a popular phrase.

Instead of taking into account the interconnectedness of our major problems, their so-called “solutions” tend to focus on a single issue, thereby simply shifting the problem to another part of the system — for example, by producing more energy at the expense of biodiversity, public health, or climate stability. Pope Francis is very critical of this serious shortcoming:

20. Technology, which, linked to business interests, is presented as the only way of solving these problems, in fact proves incapable of seeing the mysterious network of relations between things and so sometimes solves one problem only to create others.

111. To seek only a technical remedy to each environmental problem which comes up is to separate what is in reality interconnected and to mask the true and deepest problems of the global system.

The Pope also recognizes clearly that systems thinking — or “integral ecology,” in his words — is inherently multidisciplinary. Hence he strongly advocates a multidisciplinary approach for solving our major global problems:

110. The fragmentation of knowledge proves helpful for concrete applications, and yet it often leads to a loss of appreciation for the whole, for the relationships between things, and for the broader horizon, which then becomes irrelevant. This very fact makes it hard to find adequate ways of solving the more complex problems of today’s world,

particularly those regarding the environment and the poor; these problems cannot be dealt with from a single perspective or from a single set of interests.

197. What is needed is a politics which is far-sighted and capable of a new, integral and interdisciplinary approach to handling the different aspects of the crisis.

63. Given the complexity of the ecological crisis and its multiple causes, we need to realize that the solutions will not emerge from just one way of interpreting and transforming reality. Respect must also be shown for the various cultural riches of different peoples, their art and poetry, their interior life and spirituality.

The Illusion of Perpetual Growth

At the very heart of our global crisis lies the illusion that unlimited growth is possible on a finite planet. Economic and corporate growth are the driving forces of global capitalism, the dominant economic system today. In this economic system, the irrational belief in perpetual growth is carried on relentlessly by promoting excessive consumption and a throw-away economy that is energy and resource intensive, generating waste and pollution, and depleting the Earth's natural resources.

Moreover, these environmental problems are exacerbated by global climate change, caused by our energy-intensive and fossil-fuel-based technologies.

Pope Francis clearly recognizes the fatal flaw of the idea of perpetual growth, and he uses strong words to condemn it, calling it a lie rather than an illusion:

106. We are the ones to lay our hands on things, attempting to extract everything possible from them while frequently ignoring or forgetting the reality in front of us.... This has made it easy to accept the idea of infinite or unlimited growth, which proves so attractive to economists, financiers and experts in technology. It is based on the lie that there is an infinite supply of the earth's goods, and this leads to the planet being squeezed dry beyond every limit.

The Pope also associates the illusion of unlimited growth with the linear, one-dimensional notion of progress:

194. Put simply, it is a matter of redefining our notion of progress. A technological and economic development which does not leave in its wake a better world and an integrally higher quality of life cannot be considered progress.

It seems, then, that our key challenge is how to shift from an economic system based on the notion of unlimited growth to one that is both ecologically sustainable and socially just. Growth

is a central characteristic of all life, but growth in nature is not linear and unlimited. While certain parts of organisms, or ecosystems, grow, others decline, releasing and recycling their components which become resources for new growth.

This kind of balanced, multi-faceted, or “qualitative” growth is well known to biologists and ecologists, and this is exactly what the Pope advocates:

193. We need also to think of containing growth by setting some reasonable limits and even retracing our steps before it is too late.... That is why the time has come to accept decreased growth in some parts of the world, in order to provide resources for other places to experience healthy growth.

More generally, Pope Francis pleads for an economics grounded in ecology and designed to mimic the ecological cycles we observe in nature:

141. Economic growth, for its part, tends to produce predictable reactions and a certain standardization with the aim of simplifying procedures and reducing costs. This suggests the need for an “economic ecology” capable of appealing to a broader vision of reality.

22. Our industrial system, at the end of its cycle of production and consumption, has not developed the capacity to absorb and reuse waste and by-products. We have not yet managed to adopt a circular model of production capable of preserving resources for present and future generations, while limiting as much as possible the use of non-renewable resources, moderating their consumption, maximizing their efficient use, reusing and recycling them.

Among the symptoms of our global crisis, climate change and economic inequality are perhaps the most urgent ones. Pope Francis addresses both of them in some detail in his encyclical. In addition, he discusses the dramatic rise in resource depletion and species extinction. He pays particular attention to the scarcity of fresh drinking water and unequivocally condemns the privatization of water:

30. Even as the quality of available water is constantly diminishing, in some places there is a growing tendency, despite its scarcity, to privatize this resource, turning it into a commodity subject to the laws of the market. *Yet access to safe drinkable water is a basic and universal human right, since it is essential to human survival and, as such, is a condition for the exercise of other human rights.*

Climate Change

Climate change is discussed in paragraphs 23–26 and in paragraphs 165 and 169 of the text in a way that accurately reflects the broad scientific consensus existing today. This should not be

surprising because one of our leading climate scientists, Hans Joachim Schellnhuber, was a key scientific adviser to the Pope for many months during the drafting of *Laudato Si'*.

The section on climate change begins (in paragraph 23) with the moral exhortation that “the climate is a common good, belonging to all and meant for all.” This is followed by brief discussions of global warming, “due to the great concentration of greenhouse gases (carbon dioxide, methane, nitrogen oxides and others) released mainly as a result of human activity.” The intensive use of fossil fuels and deforestation for agricultural purposes are mentioned as two key sources of greenhouse gases.

The many consequences of climate change discussed include the constant rise in sea levels and the increase of extreme weather conditions (23); the decrease of the planet’s biodiversity and the acidification of the oceans, compromising the marine food chain (24); and the tragic rise in the number of climate refugees (25).

This analysis is followed by the Pope’s urgent appeal to reduce greenhouse gas emissions and, eventually, to phase out fossil fuels:

26. There is an urgent need to develop policies so that, in the next few years, the emission of carbon dioxide and other highly polluting gases can be drastically reduced, for example, substituting for fossil fuels and developing sources of renewable energy. Worldwide there is minimal access to clean and renewable energy.

165. We know that technology based on the use of highly polluting fossil fuels – especially coal, but also oil and, to a lesser degree, gas – needs to be progressively replaced without delay.

Finally, Pope Francis bemoans the slow progress in developing effective climate policies and clearly denounces the situation as a moral failure:

169. With regard to climate change, the advances have been regrettably few. Reducing greenhouse gases requires honesty, courage and responsibility, above all on the part of those countries which are more powerful and pollute the most.... International negotiations cannot make significant progress due to positions taken by countries which place their national interests above the global common good. Those who will have to suffer the consequences of what we are trying to hide will not forget this failure of conscience and responsibility.

Economic Inequality

Throughout the encyclical, Pope Francis emphasizes the interdependence of environmental and social degradation. He lists numerous signs of the devastating social impact of economic

globalization, paying special attention to economic inequality:

48. The human environment and the natural environment deteriorate together; we cannot adequately combat environmental degradation unless we attend to causes related to human and social degradation. In fact, the deterioration of the environment and of society affects the most vulnerable people on the planet.

46. The social dimensions of global change include the effects of technological innovations on employment, social exclusion, an inequitable distribution and consumption of energy and other services, social breakdown, increased violence and a rise in new forms of social aggression, drug trafficking, growing drug use by young people, and the loss of identity. These are signs that the growth of the past two centuries has not always led to an integral development and an improvement in the quality of life. Some of these signs are also symptomatic of real social decline, the silent rupture of the bonds of integration and social cohesion.

51. Inequity affects not only individuals but entire countries; it compels us to consider an ethics of international relations. A true “ecological debt” exists, particularly between the global north and south, connected to commercial imbalances with effects on the environment, and the disproportionate use of natural resources by certain countries over long periods of time.... “We note that often the businesses which operate this way are multinationals.”

Perhaps the only unconvincing section of the encyclical is paragraph 50 where Pope Francis tries to downplay the importance of stabilizing population. This is perhaps not surprising, given the Church’s staunch opposition to birth control. It is especially unfortunate, however, in view of the fact that demographers have documented again and again the strong correlation between declining birth rates and women’s rights, in particular access to education. This would have given the Pope another opportunity to emphasize the interdependence of ecological balance and social justice, which is one of the main themes of his encyclical.

Need for a Global Consensus

At the end of his wide-ranging systemic and ethical analysis of the state of the world, Pope Francis concludes that we need a global consensus for effective action:

164. A global consensus is essential for confronting the deeper problems, which cannot be resolved by unilateral actions on the part of individual countries. Such a consensus could lead, for example, to planning a sustainable and diversified agriculture, developing renewable and less polluting forms of energy, encouraging a more efficient use of

energy, promoting a better management of marine and forest resources, and ensuring universal access to drinking water.

The Pope decries the lack of political leadership to achieve the urgently needed global consensus, and he does not hesitate to name wide-spread political corruption, often institutionalized, as the main culprit:

54. It is remarkable how weak international political responses have been. The failure of global summits on the environment make it plain that our politics are subject to technology and finance. There are too many special interests, and economic interests easily end up trumping the common good and manipulating information so that their own plans will not be affected.

178. A politics concerned with immediate results, supported by consumerist sectors of the population, is driven to produce short-term growth. In response to electoral interests, governments are reluctant to upset the public with measures which could affect the level of consumption or create risks for foreign investment. The myopia of power politics delays the inclusion of a far-sighted environmental agenda within the overall agenda of governments.

182. The forms of corruption which conceal the actual environmental impact of a given project, in exchange for favours, usually produce specious agreements which fail to inform adequately and to allow for full debate.

Throughout his encyclical, Pope Francis praises the actions of the global network of nongovernmental organizations (NGOs), known as the global civil society, to raise public awareness and develop systemic solutions in a variety of areas:

13. Here I want to recognize, encourage and thank all those striving in countless ways to guarantee the protection of the home which we share. Particular appreciation is owed to those who tirelessly seek to resolve the tragic effects of environmental degradation on the lives of the world's poorest. Young people demand change.

14. The worldwide ecological movement has already made considerable progress and led to the establishment of numerous organizations committed to raising awareness of these challenges.

38. We cannot fail to praise the commitment of international agencies and civil society organizations which draw public attention to these issues and offer critical cooperation, employing legitimate means of pressure, to ensure that each government carries out its proper and inalienable responsibility to preserve its country's environment and natural resources, without capitulating to spurious local or international interests.

166. Worldwide, the ecological movement has made significant advances, thanks also to the efforts of many organizations of civil society. It is impossible here to mention them all, or to review the history of their contributions. But thanks to their efforts, environmental questions have increasingly found a place on public agendas and encouraged more far-sighted approaches.

In the end, the Pope asserts unequivocally that the only effective way to develop appropriate environmental and social policies will be through political pressure of grassroots movements on governments at all levels:

179. Society, through non-governmental organizations and intermediate groups, must put pressure on governments to develop more rigorous regulations, procedures and controls. Unless citizens control political power – national, regional and municipal – it will not be possible to control damage to the environment.

With this encyclical Pope Francis has single-handedly brought the Catholic Church to the forefront of the ecology movement and has established himself as a true world leader in the mold of Václav Havel, Jimmy Carter, or the Dalai Lama. We can only hope that the wisdom and passion of *Laudato Si'* will resonate strongly around the world.¹

¹This piece was originally published on 22 June 2015 via the author's website: <http://www.fritjofcapra.net/laudato-si-the-ecological-ethics-and-systemic-thought-of-pope-francis>. It is reproduced here by permission of the author.