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Sustainable Development and Its Discontents

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Sustainable Development and Its Discontents

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ABSTRACT: *Sustainable development (or sustainability) is a decision-making framework for maintaining and achieving human well-being, both in the present and into the future. The framework requires both consideration and achievement of environmental protection, social justice and economic development. In that framework, environmental protection must be integrated into decisions about social and economic development, and social justice and economic viability must be integrated into decisions about environmental quality.*

First endorsed by the world's nations in 1992, this framework is intended to provide an effective response to the twin global challenges of growing environmental degradation and widespread extreme poverty. Sustainability provides a framework for humans to live in harmony with nature, rather than at nature's expense. It may therefore be one of the most important ideas to come out of the 20th century. In the last two decades, the framework has become a touchstone in nearly every economic sector and at every level of government, unleashing an extraordinary range of creativity in all of those realms. Sustainable development is having a significant effect on the practice of law and on the way in which laws are written and implemented. Understanding the framework is increasingly important for law makers and lawyers.

As sustainable development (or sustainability) has grown in prominence, its critics have become more numerous and more vocal. Three major lines of criticism are that the term is "too boring" to command public attention, "too vague" to provide guidance, and "too late" to address the world's problems. Critics suggest goals such as abundance, environmental integrity, and resilience. Beginning with the international agreements that shaped the concept of sustainable development, this Article provides a functional and historical analysis of the meaning of sustainable development. It then analyzes and responds to each of these criticisms in turn. While the critics, understood constructively, suggest ways of strengthening this framework, they do not provide a compelling alternative. The challenge for lawyers, law makers, and others is to use and improve this framework to make better decisions.

KEY WORDS: sustainable development, sustainability, integrated decision making, Rio Declaration, resilience

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> Our task is to create a society which is sustainable and which will give the fullest possible satisfaction to its members. Such a society by definition would depend not on expansion but on stability. This does not mean to say that it would be stagnant – indeed it could well afford more variety than does the state of uniformity at present being imposed by the pursuit of technological efficiency. We believe that the stable society . . . as well as removing the sword of Damocles which hangs over the heads of future generations, is much more likely than the present one to bring the peace and fulfillment which hitherto have been regarded, sadly, as utopian.
>
> Edward Goldsmith & Robert Allen, 'A Blueprint for Survival' (1972)[1]

1. INTRODUCTION

Rarely does a concept so swiftly and powerfully infuse such a broad range of human endeavor as has "sustainability." Sustainable development or sustainability[2] -- has become a

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[1] Edward Goldsmith & Robert Allen, 'A Blueprint for Survival,' *The Ecologist*, Jan. 1, 1972, ¶ 166. The article occupied the entire first issue of The Ecologist's second volume, and was later published as a book due to popular demand. The piece was written in advance of the 1972 U.N. Conference on the Human Environment in Stockholm – the world's first Environment Summit. Edward Goldsmith and Robert Allen are the principle authors, with contributions from Michael Allaby, John Davoll and Sam Lawrence. *available at* http://www.edwardgoldsmith.org/1125/introduction-the-need-for-change/.

[2] The terms are used interchangeably in this Article. As we will discuss, the now prevalent concept of sustainability grows out of a decades-long discussion of sustainable development. *See* Part 2 below.

touchstone in law,[3] education,[4] and business.[5] It has unleashed an extraordinary range of creativity in all of those realms. Based on its current prevalence in book titles, corporate and government policies, agreements, declarations and conference titles, the concept will continue to be prominent for decades to come.[6]

       Not surprisingly, the rise of the concept of sustainability has inspired critics. As the concept has become ubiquitous, its critics have become more numerous and more vocal. Currently, these critics fall into three broad categories.[7] First, some believe the concept is not sufficiently attractive to inspire the mobilization of human resources necessary to meet the current crisis. They assert sustainability is "too boring" to inspire the change we need. These critics suggest "thriving," "abundance" or other, more inspiring alternatives.

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[3] The Environmental Law Institute has published three separate sustainability reviews of U.S. law and policy. J. Dernbach et al., *Acting as if Tomorrow Matters: Accelerating the Transition to Sustainability* (Environmental Law Institute Press, 2012); J. Dernbach (ed.), *Agenda for a Sustainable America* (Environmental Law Institute, 2009); J. Dernbach (ed.), *Stumbling Toward Sustainability* (Environmental Law Institute, 2002). Professor Cheever was a coauthor in *Acting as if Tomorrow Matters* and contributed a chapter to *Agenda for a Sustainable America*. *See* F. Cheever & W. Scott, 'Sustainable Forestry: Moving From Concept to Consistent Practice,' *in Agenda for a Sustainable America*, at pp. 285-302.
Sustainable development is also widely applied in international law. *See, e.g.,* G. Bándi et al., *Sustainability, Law and Public Choice* (Europa Law Publishing, 2014) (explaining how sustainable development has been defined and applied in international law); M. Cordonier Segger & A. Khalfan, *Sustainable Development Law: Principles, Practices, and Prospects* (Oxford University Press, 2004) (analyzing wide variety of international legal instruments in which sustainable development concepts are applied in varying degrees). See also notes 49-53 below and accompanying text.
[4] *See, e.g.,* W. Calder & J. Dautremont-Smith, 'Higher Education: More and More Laboratories for Inventing a Sustainable Future,' in *Agenda for a Sustainable America*, pp. 93-107 (describing progress toward sustainability in higher education curriculum, research, operations, community outreach and service, student life, and institutional mission); C. Federico & J. Cloud, 'Kindergarten Through Twelfth Grade Education: Fragmentary Progress in Equipping Students to Think and Act in a Challenging World,' *in Agenda for a Sustainable America*, pp. 109-27 (describing significant but limited progress in K-12 education); S. Lavey & W. Lavey, 'Sustainability U,' *Environmental Forum,* Mar./Apr. 2015, pp. 32-6 (explaining that better sustainability program monitoring and evaluation is needed in higher education because of the billions of dollars now spent on those programs).
[5] *See, e.g.,* W. Blackburn, *The Sustainability Handbook: The Complete Management Guide to Achieving Social, Economic, and Environmental Responsibility* (Environmental Law Institute, 2007) (providing detailed guidance for business on how to carry out sustainability programs); I. Feldman, 'Business and Industry: Transition to Sustainability,' in *Agenda for a Sustainable America*, n. 3 above, pp. 71-91 (describing business efforts on behalf of sustainability); W. Thomas, *Business and Industry, in Stumbling Toward Sustainability*, n. 3 above, pp. 541-92 (describing earlier business sustainability efforts).
[6] Plugging the word "sustainability" into the Google Ngramreader – which charts the frequency of the use of words and phrases in books digitized in the Google Books Project -- shows the dramatic rise of the term. Since the late 1970s "sustainability" has increased dramatically in usage. "Sustainable Development" has followed a similar, if slightly less spectacular, trajectory. Google Books, Ngram Viewer, https://books.google.com/ngrams/graph?content=sustainability%2C+sustainable+development&year_start=1800&year_end=2000&corpus=15&smoothing=3&share=&direct_url=t1%3B%2Csustainability%3B%2Cc0%3B.t1%3B%2Csustainable%20development%3B%2Cc0 (search for books on sustainable development and sustainability by date) (last visited June 27, 2015). This rapid rise led xkcd (A webcomic of Romance, Sarcasm, Math and Language) to extrapolate a world in which -- by 2061 -- "sustainable" occurs an average of once per sentence and -- by 2109 -- "all sentences are just the word 'sustainable' repeated over and over again." Sustainable. Available at: https://xkcd.com/1007/.
[7] For a more complete discussion of these critics, *see* Part 3 below. To be sure, there are other critics, including those who see sustainability as part of an international conspiracy to weaken property rights. See n. 135 below. The three lines of critical arguments analyzed here, however, appear to be the most prevalent.

Second, there are those who feel the concept is so ill-defined that it can serve no useful purpose and can easily be used to support "greenwashing"—making inaccurate or exaggerated claims about a company's environmental or sustainability performance. They assert sustainability is "too vague" to be useful because they see it being applied without serious attention to environmental protection or environmental integrity.

Third, there are those who believe that the prospect for human future on the planet Earth is so dire that the idea of anything being sustainable is illusory–a form of denial–and must be discarded. Motivated especially by the growing reality of climate disruption, these critics assert it is "too late" for the concept of sustainability to be useful, that we must now speak about "surviving not thriving." Many argue that "resilience" should replace sustainability.

None of these three groups of critics is entirely without justification. However, each misconstrues the fundamental nature of the concept of sustainability. This article explains the origin and purpose of sustainability or sustainable development, and then applies that understanding to respond to each of these groups of critics.

Part 2 of this article provides a functional and historical analysis of the meaning of sustainable development, focusing on sustainable development as a framework for making decisions. We must begin with history because the term only makes sense in light of its history. It is the history of the concept and the practice that it has inspired that gives it meaning. As Part 2 explains, the sustainable development framework is intended to provide an effective response to the two global challenges of growing environmental degradation and widespread extreme poverty. These problems have occurred when environmental protection and development decisions are made separately. Not surprisingly, then, the central idea of sustainable development is integration of environment and development decision making. Its purpose is to maintain and improve human well-being for the current generation as well as future generations.

Sustainability is not an academic concept or a marketing gimmick; it is a framework for making decisions that reflects abundant real-world experience. The primary challenge is not to better define our environmental or social goals, although that is important. Rather, the primary challenge is to make better decisions. This framework provides a way of responding constructively to the challenges of "too boring," "too vague" and "too late" critics.

Part 3 addresses each of these objections to sustainability in turn. Taken together, these critics focus on various popular understandings or versions of sustainability, not the understanding of sustainable development (or sustainability) described in Part 2. While their suggestions — greater attention to a more positive future, genuine environmental protection, and resilience — are not necessarily in harmony, each can be accommodated within the sustainable development framework. In varying ways, moreover, each of them should be accommodated in that framework.

These critics and their arguments provide an opportunity to explore the concept of sustainability, its power, and its limitations. This is important because sustainability has become the internationally accepted framework for maintaining and improving human well-being. In 1992, at the U.N. Conference on Environment and Development, the world's nations agreed to a "global partnership for sustainable development," explaining that "integration of environment and development concerns and greater attention to them will lead to the fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more

prosperous future."[8] In 2012, at the U.N. Conference on Sustainable Development, the world's nations agreed to "renew our commitment to sustainable development and to ensuring the promotion of an economically, socially and environmentally sustainable future for our planet and for present and future generations."[9] At that same conference, they committed to a process for adoption of Sustainable Development Goals for all countries.[10] This understanding of the central role of sustainable development is not limited to governments. In June 2015, Pope Francis I issued an encyclical on the environment and climate change that is framed in significant part by sustainable development: "The urgent challenge to protect our common home includes a concern to bring the whole human family together to seek a sustainable and integral development…."[11]

Sustainable development is also an important idea; indeed, it may be one of the most important ideas to come out of the 20th century. It deserves that claim because it provides an overall framework for humans to live in harmony with nature, rather than at nature's expense, as we have lived for centuries. Some authors describe it as an idea or principle of the same level of fundamental importance as freedom, equality, and justice.[12]   In democracies in which governmental and business decision makers respond to the market of ideas and information, we need a reasonably accurate *public* understanding of sustainability to move those decision makers in a more sustainable direction. Unless a wide variety of people and organizations properly understand sustainability and demand better decisions, more sustainable decisions are not likely. A proper understanding of this framework is necessary if we are to make enough progress, fast enough, to matter.

Sustainable development is a normative conceptual framework; it is not a legal framework. But just as other normative ideas (e.g., freedom, equality, and justice) have been written into law, so sustainable development is being written into law. Sustainable development provides a framework for writing, modifying, and implementing laws, and for developing appropriate institutions and institutional arrangements, to further sustainable development in specific places and specific contexts. This law includes constitutions, statutes, and other forms of public law— laws that have been adopted and others that are being continually proposed. Sustainable development is also being employed in private law, including certification, auditing, labeling, and reporting programs for sustainability, which tend to be enforced through a variety of contractual

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[8] U.N. Conference on Environment and Development (UNCED), Agenda 21, U.N. Doc. A/CONF.151.26, 1992, at ¶ 1.1. Available at: http://www.un.org/esa/dsd/agenda21/.

[9] U.N. Conference on Sustainable Development, *The Future We Want*, U.N. Doc. A/66/L.56, July 24, 2012, ¶ 1. Available *at* http://daccess-dds-ny.un.org/doc/UNDOC/LTD/N12/436/88/PDF/N1243688.pdf?OpenElement.

[10] Id. ¶¶ 245-51. At the time this article is being finalized, those goals are still in draft form. United Nations, Sustainable Development Goals. Available at:
https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals.

[11] Francis I*, Laudato Si*, (2015), at ¶ 13. Available at
http://w2.vatican.va/content/dam/francesco/pdf/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si_en.pdf.

[12] K. Bosselmann, *The Principle of Sustainability: Transforming Law and Governance* (Ashgate Publishing 2008), at p. 57.

and related arrangements.[13] In addition, many public sector and private sector clients are seeking legal help to meet their sustainability objectives.[14]

Sustainable development is thus becoming increasingly important to lawyers. Sustainable development is a growing part of law practice in nearly every practice area and involves many different skills.[15] As the American Bar Association Task Force on Sustainable Development concluded in 2014, the "transition to sustainability in both governmental and private sector decision making is inevitable, and will profoundly affect the legal profession."[16] The transition toward sustainability in the legal profession is also both reflected and encouraged by a wide variety of activities on behalf of sustainability in law schools, including but not limited to courses, scholarship, facilities, and community service.[17]

More broadly, the definitional issue matters because it is now more than two decades—almost a human generation—since the 1992 United Nations Conference on Environment and Development, or Earth Summit, first endorsed sustainable development and brought the concept to prominence. The historic understanding—that sustainable development is a form of development, and that integrated decision making for human well-being is at its core—has often been obscured, particularly for people who came of age after that time, or for people who are new to sustainable development. As Part 3 suggests, the use of sustainability as shorthand for sustainable development has contributed to the loss of that original meaning. The idea that sustainable development is a form of development has been replaced, to a significant degree, with a dictionary-definition understanding of sustainable—something that is "able to be maintained or continued,"[18] or simply as something that is vaguely green. The historical understanding of sustainability has also been weakened by the growing prominence of climate change as an issue. Unlike 1992, there is now overwhelming scientific evidence that climate change is already occurring, that more severe changes are likely to come, and that adaptation is both necessary and urgent.[19] Some simply see climate change as a more important issue, and believe we most focus

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[13] M. Vandenbergh, 'Private Environmental Governance,' (2013) 99(1) *Cornell Law Review* 129-99.

[14] J. Dernbach, 'The Essential and Growing Role of Legal Education in Achieving Sustainability,' (2011) 60(2) *Journal of Legal Education*, pp. 489-518, at 493-94.

[15] American Bar Association Task Force on Sustainable Development, 'First-Year Report' (2014), at p. 2. Available at: http://acoel.org/file.axd?file=2014%2F9%2FABA+SD+TaskForceRpt+2014.pdf. According to the Task Force: "Sustainability is affecting, or will affect, tax law, insurance, banking, finance, real estate development, environmental and energy law, among other fields. It also involves a wide range of knowledge and skills, including commercial transactions, client counseling, litigation, advocacy before governmental agencies and other bodies, and legislative drafting." Ibid. For an overview of this activity, *see* J. Dernbach et al., 'The Growing The Growing Importance of Sustainability to Lawyers and the ABA,' *Trends* (ABA Section of Environment, Energy, and Resources), July/August 2013. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2316264. *See also* N. Cleveland, 'Sustainability Reporting: The Lawyer's Response,' (Jan. 2015) *Business Law Today* (explaining what corporate clients can and should report publicly about their sustainability activities). Available at: *Bus. L. Today*, Jan. 2015, http://www.americanbar.org/publications/blt/2015/01/04_pike.html.

[16] Ibid. at p. 4.

[17] 'The Essential and Growing Role of Legal Education in Achieving Sustainability,' n. 14 above.

[18] 'Sustainable,' Cambridge Dictionaries Online. Available at: http://dictionary.cambridge.org/us/dictionary/american-english/sustainable.

[19] Intergovernmental Panel on Climate Change, *Climate Change 2013: The Physical Science Basis*, *Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press, 2013).

on addressing and preparing for its impacts, in spite of the fact that sustainable development provides a solid and dependable decision-making framework for addressing these impacts.

To be sure, the definitional issue is not new to sustainability; questions about its meaning and implications have surrounded the concept from its beginning.[20] One response is to assert that we should simply forge ahead with the task of achieving sustainability, and not quibble about definitions. But words and ideas matter. We cannot move ahead on sustainability without some confidence that we are doing what we need to do. Informed criticism of particular projects or proposals, based on a historical and functional understanding of sustainability, is much more likely to contribute to sustainable outcomes than criticism based on a misunderstanding of the term. In fact, we need robust discussion and debate about what a historical and functional understanding of sustainable development requires in specific contexts; different conclusions about how to proceed may often be reasonably drawn. When we discuss what sustainable development actually means, we are discussing the kind of world in which we want to live in the face of major environmental and social challenges, and about the laws and legal institutions needed to make that happen.

2. HISTORY OF AN IDEA: SUSTAINABLE DEVELOPMENT

Sustainable development is a decision-making framework for maintaining and achieving human well-being, both in the present and into the future. It is premised on principles of basic equity—that each human being is entitled to a certain quality of life and that the minimum conditions for human quality of life should be maintained from generation to generation. Sustainable development confronts the related problems of widespread environmental degradation and extreme poverty, which present profound threats to human well-being for both this and future generations.

Sustainable development is based on a powerful critique of conventional development, and the minimal role that environmental protection tends to play in decision making for conventional development. While conventional development brings economic and social benefits, it also damages the environment and people who depend on it, thus offsetting to a significant degree the benefits it creates. The damage from conventional development—to both human beings and the environment—is compromising society's ability to provide minimal conditions for human quality of life. To correct this failing, the key action principle for *sustainable* development is integrated decision making—the integration of development and environmental objectives and considerations (including environmental quality, social justice, and economic viability) in making decisions. In addition, a handful of principles support the integrated decision-making process. Parties should not use the absence of scientific certainty as a reason for postponing cost-effective measures to prevent environmental degradation ("the precautionary approach"). Generally, parties should be responsible for the damage they cause ("the polluter-pays principle"). The public needs to be informed and involved in the process of making decisions ("public participation"). These principles, taken together, provide a framework for decision making. The simplicity of the framework facilitates its employment by decision-makers at every level: public and private, global

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[20] B. Brown *et al.*, 'Global Sustainability: Toward Definition' (1987) 11(6) *Environmental Management.* 713-19.

national regional or local. The framework is also supple enough to apply to both old and new problems, as well as new dimensions of existing problems.

The overall objective of this decision-making framework is ecologically sustainable human development. From a functional perspective, sustainable development will occur when (or if) there is no longer extreme poverty and widespread environmental degradation. Sustainable development would change the way in which individual development projects occur, eliminating adverse effects or reducing them to *de minimis* levels, and even creating positive environmental outcomes. But the framework itself does not come with specific environmental and social objectives; those should be determined on a case-by-case basis in light of the overall objective.

This relatively straightforward and nonspecific recipe for decision making grows out of an extensive history discussed below. As this history suggests, sustainable development is best stood from a functional and historical perspective. We must identify the problems it is intended to address and the approach that was and is understood as central to addressing them. This is not to say that there is only one proper approach to understanding sustainable development; many reasonable interpretations of this framework are possible. But it does suggest that approaches to sustainability not grounded in this framework are unlikely to be effective in addressing widespread environmental degradation and large-scale extreme poverty.

2.1. Origins

The origins of sustainable development have been traced to "ancient civilizations and traditional legal systems" from around the world.[21] The concept also has origins in European land use and forestry laws, some of which date back to the Middle Ages.[22] Environmental and conservation laws of the United States and other countries also provide a point of departure for sustainable development.[23] This is particularly true of the United States National Environmental Policy Act of 1969, which declares the "continuing policy of the Federal Government" is to "create and maintain conditions, under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present *and* future generations"— language that captures the essence of a term that was not yet coined.[24] At about the same time, other thinkers, such as Edward Goldsmith and Robert Allen, were working out what it meant for a society to be sustainable, as the quotation at the beginning of this Article indicates.[25]

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[21] Gabčikovo-Nagymaros Project *(Hungary v. Slovakia),* Judgment, 25 September 1997, *I.C.J. Reports* (1997) at p.98 (Weeramantry, J., concurring) (explaining that their laws "relat[ing] to the harnessing of streams and rivers" attempt to ensure that "human interference with the course of nature should always be conducted with due regard to the protection of the environment"). *See also* William McDonough Architects and M. Braungart, *The Hannover Principles: Design for Sustainability* (William McDonough Architects 1992) at p. 50 ("Examples of sustainability are not hard to cull from the history of world cultures. But most often they are small scale social solutions that involve a small number of people who do little or no damage to their surrounding habitat.").

[22] K. Bosselmann, n. 12 above, at pp. 11-22.

[23] Nat'l Research Council, Committee on Incorporating Sustainability in the U.S. Environmental Protection Agency, *Sustainability and the U.S. EPA* (The National Academies Press, 2011), at pp. 15-19; M. Cordonier Segger & A. Khalfan, *Sustainable Development Law: Principles, Practices, and Prospects* (Oxford University Press, 2004), at pp. 15-19.

[24] 42 U.S.C. § 4331(a) (2006). (emphasis added).

[25] Goldsmith & Allen, n. 1 above.

The term "sustainable development" emerged for the first time in 1980 in a report of a nongovernmental organization, the International Union for the Conservation of Nature and Natural Resources (IUCN).[26] That report, a conservation strategy for living resources, explicitly linked conservation and development through the term sustainable development.[27] One year later, Lester Brown at the Worldwatch Institute made sustainability a household phrase with his 1981 book, *Building a Sustainable Society*.[28] Brown did not make an effort to define a sustainable society. Rather, he emphasized the unsustainable use of resources in past and present societies.[29] A sustainable society, by implication, was a society that would avoid demonstrably unsustainable behavior. However, Brown understood that maintaining environmental quality and sustainable behavior required addressing problems of social inequality both within nations[30] and among nations.[31] Sustainability soon developed depth as an analytical tool in response to short-term improvements in agricultural yield in the Third World. Applying the concept of sustainability to agriculture allowed policymakers and agronomists to argue for more ecological and more culturally sensitive approaches to agriculture than had been initially embraced as part of the "green revolution."[32]

Then, in 1987, the World Commission on Environment and Development, a blue ribbon panel brought together by the U.N. General Assembly, issued a landmark report on sustainable development. The Commission, which was chaired by then-Norwegian Prime Minister Gro Harlem Brundtland, endorsed the concept of sustainable development and recommended both an international conference and a program of action to foster sustainable development.[33] The report, *Our Common Future*, contains what is probably the most often cited definition of sustainable development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[34] The Brundtland Commission emphasized—again and again—the importance of an integrated decision-making process taking into account both economic development and environmental quality to further human welfare.[35]

The United Nations Conference on Environment and Development, or Earth Summit, was held in Rio de Janeiro in 1992 in response to this report. The conference produced a plan of action for sustainable development (Agenda 21)[36] and a set of principles to guide the effort (Rio

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[26] Int'l Union for the Conservation of Nature and Natural Res., *World Conservation Strategy: Living Resource Conservation for Sustainable Development* (1980), *available at* https://portals.iucn.org/library/efiles/html/WCS-004/cover.html; M. Cordonier Segger & A. Khalfan, n. 3 above, at p. 17.

[27] Int'l Union for the Conservation of Nature and Natural Res., *World Conservation Strategy*, n. 26 above.

[28] Lester R. Brown, *Building a Sustainable Society* (W.W. Norton & Co. 1981).

[29] Ibid. at pp. 1-9, 245-271.

[30] Ibid. at pp. 271-275 ("Simpler Life-Styles Among the Affluent").

[31] Ibid. at pp. 275-287.

[32] G. Douglass (ed.), *Agricultural Sustainability in a Changing World Order* (Westview Press, 1984).

[33] World Commission on Environment and Development, *Our Common Future* (Oxford University Press, 1987) at pp. 43-65, 343 (1987).

[34] Ibid. at p. 24.

[35] Ibid. at pp. 37-41.

[36] Agenda 21: Programme of Action for Sustainable Development, UN Doc. A/CONF.151/26, 14 Jun. 1992, available at: http://www.unep.org.

Declaration).[37] The Rio Declaration principles have played, and continue to play, a significant role in guiding laws and policies for sustainable development.[38] Significantly, the United Nations opened two treaties for signature at this conference: the United Nations Framework Convention on Climate Change,[39] and the Convention on Biological Diversity.[40] Both of these treaties employ sustainable development concepts and principles. The Climate Change Convention states, as a basic principle: "The Parties have a right to, and should, promote sustainable development."[41] The objectives of the Biodiversity Convention include "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources . . . ."[42] Echoing *Our Common Future*, the Biodiversity Convention defines "sustainable use" as "the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations."[43] This language, however, as we shall see also invokes the distinct tradition of commercial sustained yield.[44]

Since that time, the meaning and application of sustainable development have unfolded through intergovernmental processes in at least two ways. First, there have been a series of international conferences and reviews of progress in achieving sustainable development. These occurred on the fifth,[45] tenth,[46] and twentieth[47] anniversaries of the Earth Summit. The latter and most recent conference, held in Rio de Janeiro in 2012, not only renewed the Earth Summit commitments; it also created new processes to resolve a handful of major issues. These include the strengthening of international environmental institutions and the establishment of sustainable development goals.[48]

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[37] Adopted by the UN Conference on Environment and Development, Rio de Janeiro (Brazil), 3–14 June 1992, UN Doc. A/CONF.151/26/Rev.1 (Vol. I), 14 Jun. 1992, available at:
http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm.

[38] For a detailed explanation of each of the principles contained in the Rio Declaration, see J. Viñuales (ed.), *The Rio Declaration on Environment and Development: A Commentary* (Oxford University Press 2015).

[39] New York, NY (US), 9 May 1992, in force 21 Mar. 1994, available at: http://unfccc.int.

[40] United Nations Convention on Biological Diversity, Rio de Janeiro (Brazil) June 5, 1992, 1760 U.N.T.S. 79, *reprinted in* 31 I.L.M. 818 (1992).

[41] Framework Convention, n. 39 above, art. 3.4.

[42] Biodiversity Convention, n. 40 above, art. 1.

[43] Ibid. art. 2.

[44] Text accompanying notes 188-196 below.

[45] G.A. Res. S/19-2, U.N. Doc. A/RES/S-19/2 (Sept. 19, 1997), *available at* http://www.un.org/documents/ga/res/spec/aress19-2.htm (adopting *Programme for the Further Implementation of Agenda 21*, which is included in the resolution).

[46] United Nations World Summit on Sustainable Development, Johannesburg, S. Afr., Aug. 26-Sept. 4, 2002, *Report of World Summit on Sustainable Development*, U.N. Doc. A/CONF.199/20 (2002), *available at* http://www.un.org/jsummit/html/documents/summit_docs/131302_wssd_report_reissued.pdf (including Johannesburg Declaration on Sustainable Development and Plan of Implementation of the World Summit on Sustainable Development).

[47] G.A. Res. 66/288, U.N. GAOR, 66th Sess., U.N. Doc. A/CONF.216/16 (2012), *available at* http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/66/288&Lang=E.

[48] J. Dernbach, 'The Unfinished Story of the Rio+20 Conference' (2012) 35 Daily Env't Rep. (BNA) No. 980, pp. 1-6. As of this writing, the United Nations is scheduled to adopt sustainable development goals in September 2015. United Nations, Sustainable Development Goals, https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals.

A second series of international processes involves the implementation of specific treaties that are intended to encourage sustainable development. These include the Framework Convention on Climate Change[49] and the Convention on Biological Diversity.[50] The text of treaties that have been negotiated since 1992 tends to reflect the sustainable development framework, although not always fully.[51] The treaty creating the World Trade Organization specifically recognizes "the objective of sustainable development."[52] The treaty on which the European Union is based declares sustainable development to be one of the EU's objectives, and the European Union has been implementing a sustainable development strategy since 2001.[53]

2.2. A Decision-Making Framework

Because sustainable development is a framework for making decisions based on the integration of development and environmental objectives or considerations, it is important to understand what "development" means in this context. Americans tend to be uncomfortable with the term "development." They often see it in terms of the conversion of their favorite woodland or field into housing or a shopping mall; that is, after all, the term that is often used when woodlands and fields are ploughed under and paved over. At the international level, however, where the term sustainable development originated, development has a different meaning. As an international project, development came into prominence at the end of World War II, when a series of international agreements and treaties created an architecture that supported and fostered it. Development includes not only economic development, but also social development or human rights, and it depends on peace and security. [54] Social development and economic development, in

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[49] The parties to the Framework Convention on Climate Change, n. 39, have held annual conferences since 1995. *See* Documents of the Conference of the Parties at its First Session, UNFCCC.INT, http://unfccc.int/cop5/resource/cop1.html. At the 1997 conference in Kyoto, Japan, the parties agreed to a protocol to reduce greenhouse gas emissions by approximately five percent below 1990 levels by 2008-2012. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto (Japan), art. 3.1, 11 Dec. 1997, in force 16 Feb. 2005, available at: http://unfccc.int.A successor agreement to the Kyoto Protocol is expected at the conference of the parties in Paris at the end of 2015.

[50] The conference of the parties to the Biodiversity Convention now meets every other year, and has developed two protocols. See Convention on Biological Diversity, Conference of the Parties (COP). Available at: https://www.cbd.int/cop/.

[51] M. Cordonier Segger & A. Khalfan, n. 3 above, at p. 95 ("Increasing numbers of international treaties , particularly in the fields of international economic and environmental law, have set sustainable development asan objective or part of their purposes"); P. Sands and J. Peel, with A. Fabra and R. MacKenzie, *Principles of International Environmental Law* (Cambridge University Press, 3rd ed., 2012), pp. 187-236 (explaining how sustainable development and various principles of Rio Declaration have been incorporated into a variety of treaties and other international agreements).

[52] Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 154. See M. Gehring & M. Cardonier-Segger (eds.), *Sustainable Development in World Trade Law* (Kluwer Law International, 2005).

[53] Consolidated Version of the Treaty on European Union and the Treaty on the Functioning of the European Union, Tit. I, arts 3.3, 3.5, 21.2(d), & 21.2(f); tit. II, art. 11, *reprinted in consolidated form at* OJEU 2010/C 83/01 (committing the European Union to sustainable development); European Commission, Sustainable Development, (describing history and current status of EU sustainable development strategy). Available at: https://www.cbd.int/cop/.

[54] J. Dernbach, 'Sustainable Development as a Framework for National Governance' (1998), 49 *Case Western Reserve Law Review*, pp. 1-103.

turn, are mutually dependent. Children who are not well educated or who are not healthy are unlikely to grow up to be productive or effective workers. Economic development, in turn, enables higher levels of education and public health.[55]

Economic and social development work together to improve human freedom, opportunity and quality of life. As the Brundtland Commission states, "The satisfaction of human needs and aspirations is the major objective of development."[56] Economist Amartya Sen explains development is a process that enlarges individual freedom.[57] He writes, "For most practitioners and theorists. . . the overall objectives of alleviating poverty and human suffering and of improving the human condition more generally are the desired end product of the development process."[58]

This model has been successful in many ways. It has helped prevent a third world war,[59] it has fostered economic growth, and it has improved living conditions.[60] But this model, and the post-war international agreements that support it, say little or nothing about natural resources or environmental protection. The Brundtland Commission found that development had contributed to two problems—widespread environmental degradation and poverty. These two problems not only threaten to undermine the achievements of development; they also mean that development is not fully effective on its own terms.[61]

As the Brundtland Commission explained, poverty and environmental degradation reinforce each other.[62] People in poverty tend to engage in environmentally destructive activities, including deforestation and farming or grazing on degraded lands. They often have no other choice to survive. Yet unhealthy and unsafe conditions from environmental degradation keep these people in poverty. There is ample evidence of the adverse effects of environmental degradation and human well-being in both developed and developing countries.[63] Put plainly, unsustainable development is also unjust development and unjust development is generally unsustainable.

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[55] *See* ibid. at pp. 9-14.

[56] World Commission on Environment and Development, *Our Common Future*, n. 33 above, at p. 54.

[57] *See* A. Sen, *Development as Freedom* 3 (Knopf, 1999); see also K. De Feyter, *World Development Law: Sharing Responsibility for Development* (Intersentia, 2001) at p. 32 ("[D]evelopment aims at enlarging the opportunities people have in their lives.").

[58] R. Sarkar, *International Development Law: Rule of Law, Human Rights, and Global Finance* (Oxford University Press, 2009), at p. xvi.

[59] M. Mandelbaum, *The Ideas that Conquered the World: Peace, Democracy, and Free Markets in the Twenty-first Century* (Public Affairs 2002) (explaining how economic development, and to a lesser degree, democracy, have to a significant degree displaced war).

[60] U.N. Environment Programme, *Keeping Track of Our Changing Environment: From Rio to Rio+20* (United Nations Environment Programme, 2011).

[61] World Commission on Environment and Development, *Our Common Future*, n. 33 above, at pp. 28-37.

[62] Ibid.

[63] J. Dernbach, P. Salkin & D. Brown, 'Sustainability as a Means of Improving Environmental Justice' (2012), 19 *Missouri Journal of Environmental and Sustainability Law.* at pp. 1-34; see also Yves Le Bouthilier et al. (eds.) *Poverty Alleviation and Environmental Law* (IUCN Academy of Environmental Law, 2012) (describing the relationship between environmental degradation and poverty in greater detail, and explaining how law can address both of these problems). An example of how conventional development often benefits some at the expense of others, and how law supports that result, occurs in Sipriano v. Great Spring Waters of America, Inc., 1 S.W.3d 75 (Tex. 1999), where a bottled water company used so much of a groundwater aquifer for its operation that the neighbors were deprived of water for their own use. The Texas Supreme Court upheld a grant of summary judgment against the neighbors, holding that the common law rule of capture protected the company from liability. In a concurring

While hundreds of scholars and policy makers have quoted the definition of sustainable development from *Our Common Future*, fewer recognize the essential accomplishment of that report: linking environmental quality with meeting the needs of the world's poor through the functioning of the world economy. As the Brundtland Commission explained:

> Environment and development are not separate challenges; they are inextricably linked. Development cannot subsist upon a deteriorating environmental resource base; the environment cannot be protected when growth leaves out of account the costs of environmental destruction. These problems cannot be treated separately by fragmented institutions and policies. They are linked in a complex system of cause and effect.[64]

Sustainable development, as its name implies, would correct but not replace the existing international development model. The basic idea is ensure that development is also environmentally protective or restorative. Development's goals of human freedom, opportunity and quality of life remain; sustainable development, Amartya Sen writes, can preserve and extend individual freedom for both the present and future generations.[65] The first principle of the Rio Declaration states: "Human beings are at the centre of concerns for sustainable development.[66] But there is a twist: "They are entitled to a healthy and productive life *in harmony with nature*."[67]

Equity, including intergenerational equity, provides the context in which sustainable development is supposed to occur. According to the Rio Declaration: "[t]he right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations."[68] As Professor Edith Brown Weiss has explained, each generation is entitled to a quality of planet enjoyed by prior generations, and also has an obligation to pass to the next generation a quality of planet that is no worse than it received.[69] Because poverty and environmental degradation are linked, equity within the current generation is necessary for equity

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opinion, Justice Hecht wrote, "In the last several decades it has become clear, if it was not before, that it is not regulation that threatens progress, but the lack of it." Ibid. at p. 82.

[64] World Commission on Environment and Development, *Our Common Future*, n. 33 above, at p. 48. Similarly, the IUCN conservation strategy describes six "main obstacles to achieving conservation," nearly all of which are based on or linked to "failure to integrate conservation and development." Int'l Union for the Conservation of Nature and Natural Res., World Conservation Strategy, n. 26 above, exec. sum. ¶ 3.

[65] A. Sen, *The Idea of Justice* (Belknap Press, 2009), at pp. 248-52.

[66] Rio Declaration on Environment and Development, n. 37 above, at prin. 1.

[67] Ibid. (emphasis supplied). IUCN states that "the goal of the World Conservation Strategy is the integration of conservation and development to ensure that modifications to the planet do indeed secure the survival and well-being of all people." Int'l Union for the Conservation of Nature and Natural Res., *World Conservation Strategy*, n. 26 above, at ch. 1, ¶ 12. The Brundtland Commission explained that sustainable development "requires that societies meet human needs both by increasing productive potential and by ensuring equitable opportunities for all." World Commission on Environment and Development, *Our Common Future*, n. 33 above, at p. 44.

[68] Rio Declaration on Environment and Development, n. 37 above, at prin. 3.

[69] E. Weiss, 'In Fairness to Future Generations and Sustainable Development' (1992) 8 *American University International Law Review*, pp. 19-26, at 22-23. She also argues that each generation should conserve the options of future generations by conserving "the diversity of the natural and cultural resource base," and that all people in the current generation should have the same minimal level of access to this legacy. Ibid. at pp. 22, 23. For a more complete exposition of these ideas, *see* Edith Brown Weiss: *In Fairness to Future Generations: International Law, Common Patrimony, and Intergenerational Equity* (Transnational 1989).

between generations. Intergenerational equity is reflected in both the Climate Change Convention[70] and the Convention on Biological Diversity.[71]

The foundational action principle of sustainable development is integrated decision making.[72] "In order to achieve sustainable development," the Rio Declaration states, "environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it."[73] The IUCN strategy states that the "most effective way" to avoid ecological damage caused by development "is to integrate every stage of the conservation and development processes, from the initial setting of policies to their eventual implementation and operation."[74] Similarly, *Our Common Future* states: "The common theme throughout this strategy for sustainable development is the need to integrate economic and ecological considerations in decision making. They are, after all, integrated in the workings of the real world."[75] Integrated decision making, the Brundtland Commission said, is the "chief institutional challenge" of the time: "The ability to choose policy paths that are sustainable requires that the ecological dimensions of policy be considered at the same time as the economic, trade, energy, agricultural, industrial, and other dimensions—on the same agendas and in the same national and international institutions."[76] The central role of integrated decision making is repeatedly stated in Agenda 21,[77] the Climate Change Convention,[78] and the Convention on Biodiversity.[79] Integrated

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[70] "The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities." Framework Convention, n. 39 above, at art. 3.1. The parties also state that they are "*[d]etermined* to protect the climate system for present and future generations." Ibid., preamble (emphasis added).

[71] The Biodiversity Convention includes both conservation and sustainable use among its objectives, and defines sustainable use as use of biological material in a way "that maintains its potential to meet the needs and aspirations of present and future generations." Biodiversity Convention, n. 40 above, at arts. 1 & 2; *see also* Ibid., preamble (stating that the parties are "*[d]etermined* to conserve and sustainably use biological diversity for the benefit of present and future generations" (emphasis added).

[72] J. Dernbach, 'Achieving Sustainable Development: The Centrality and Multiple Facets of Integrated Decisionmaking' (2003) 10 *Indiana Journal of Global Legal Studies.* pp. 247-285 (analyzing and comparing various provisions of the Rio Declaration); *see also* M. Cordonier Segger & A. Khalfan, n. 3 above, at p. 103 (defining "sustainable development law" as a "set of legal instruments and provisions where environmental, social and economic considerations are integrated by varying degrees in different circumstances").

[73] Rio Declaration on Environment and Development, n. 37 above, prin. 4; *see also* ibid., prin. 25 ("Peace, development and environmental protection are interdependent and indivisible.").

[74] World Conservation Strategy, n. 26 above, at ch. 9, ¶ 1.

[75] World Commission on Environment and Development, *Our Common Future*, n. 33 above, at p. 71.

[76] Ibid. at p. 313.

[77] U.N. Conference on Environment and Development, Agenda 21, n 36 above, ¶ 8.4 (stating that that the first and most important thing national governments need to do is "integrate environmental and development decision-making processes"); *see also id.* ¶ 8.16 (describing the "overall objective" as "the integration of environment and development policies through appropriate legal and regulatory policies, instruments and enforcement mechanisms").

[78] Under the Climate Change Convention, all parties agreed to the principle that "[p]olicies and measures to protect the climate system against human-induced change should be . . . integrated with national development programmes, taking into account that economic development is essential for adopting measures to address climate change." Framework Convention, n. 39 above, at art. 3.4. They therefore agreed to "[t]ake climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions . . . ." Ibid. art. 4.1(f).

[79] The parties agreed to "[i]ntegrate consideration of the conservation and sustainable use of biological resources into national decision-making." Biodiversity Convention, n. 40 above, art. 10(a). They also agreed to "[i]ntegrate, as

decision making not only recognizes a broader range of considerations than business as usual, but also allows for broader range of solutions.[80]

Significantly, there are different kinds of integration.[81] Procedural integration occurs when environment and social effects are considered is part of the decision-making process. This is very much like the environmental assessment process required by the National Environmental Policy Act (NEPA) in the United States, which requires federal agencies to assess the environmental effect of, and alternatives to, major federal projects that may have significant environmental impacts.[82] Substantive integration requires more than consideration of environmental and social effects; it requires that specific and substantive environmental and social goals be established and realized as part of the decision-making process. Under NEPA, an agency may fully consider environmental and social effects and still proceed with a damaging project.[83] As a general matter, that is not how substantive integration works. As a general matter, too, substantive integration is much more likely to further sustainable development than procedural integration. A handful of other principles support and guide integrated decision making.[84] These include "the precautionary approach." As stated in the Rio Declaration: "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."[85] The precautionary approach is about the level of scientific support required for the environmental aspect of integrated decision making.[86] The Climate Change Convention include a similar formulation of the precautionary approach .[87] The precautionary approach also guides implementation of the Convention on Biological Diversity.[88]

The polluter-pays principle is also supposed to guide integrated decision making. The Rio Declaration states: "National authorities should endeavor to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that

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far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies." Ibid. art. 6(b).

[80] 'Achieving Sustainable Development: The Centrality and Multiple Facets of Integrated Decisionmaking,' n. 72 above.

[81] For a more detailed explanation, see ibid. at pp. 260-65.

[82] 42 U.S.C. § 4332. Approximately 160 countries have similar laws. Richard Lazarus, 'The National Environmental Policy Act in the U.S. Supreme Court: A Reappraisal and a Peek Behind the Curtains' (2012) 100 *Georgetown Law Journal* pp. 1507-86, at 1510.

[83] Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350-52 (1989).

[84] 'Achieving Sustainable Development: The Centrality and Multiple Facets of Integrated Decisionmaking', n. 72 above, at pp. 253-58.

[85] Rio Declaration on Environment and Development, n. 37 above, at prin. 15.

[86] 'Achieving Sustainable Development: The Centrality and Multiple Facets of Integrated Decisionmaking', n. 72 above, at pp. 254-55; *see also* M. Cordonier Segger & A. Khalfan, n. 3 above, at pp. 143-55 (explaining the history and application of the precautionary approach).

[87] Framework Convention, *n.* 39 above, at art. 3.3:

> The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost…..

[88] *See, e.g.*, R. Cooney & B. Dickson (eds.), *Biodiversity and the Precautionary Principle: Risk, Uncertainty and Practice in Conservation and Sustainable Use* (Routledge, 2005).

the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment."[89] Internalization of costs means their incorporation into the price of a product or service. This price in turn guides decision making by integrating information about economic and environmental costs.[90] While this is basic environmental economics, the polluter-pays principle also contains more than a grain of social justice. What economists refer to as externalities, in other words, are the adverse effects of a conventional development project or activity on other people and the environment on which they depend.

Public participation, access to information and justice are also needed to foster integrated decision making.[91] Among other things, they can ensure more informed and more responsible decision making by governmental and nongovernmental bodies.[92] At a practical level, integrated decision making is more likely to occur when people representing a variety of social, environmental and economic perspectives participate effectively in the decisions that affect them, and have access to accurate information that is relevant to those decisions. Recourse to the courts enhances the likelihood that public and private decision makers will take them seriously, and provides an opportunity to correct or reverse incorrect decisions. These principles, taken together, provide the decision-making framework for sustainable development.

2.3. Environmental and Social Goals

A striking feature of the sustainable development framework is the absence of a single or specific environmental or social goal toward which integrated decision making should be directed.[93] The Brundtland Commission's iconic definition of sustainable development— "development that meets the needs of the present without compromising the ability of future generations to meet their own needs"[94]—says nothing about the environment, let alone an

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[89] Rio Declaration on Environment and Development, n. 37 above, prin. 16.

[90] 'Achieving Sustainable Development: The Centrality and Multiple Facets of Integrated Decisionmaking,' n. 72 above, at p. 254.

[91] Principle 10 of the Rio Declaration on Environment and Development, n. 37 above, provides:

Environmental issues are best handled with participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

[92] 'Achieving Sustainable Development: The Centrality and Multiple Facets of Integrated Decisionmaking,' n. 72 above, at pp. 255-56; M. Cordonier Segger & A. Khalfan, n. 3 above, at pp. 156-66 (explaining the history and application of these principles); J. Dernbach, 'Citizen Suits and Sustainability' (2004), 10 *Widener Law Review* pp. 503-526 (explaining the importance of these principles in the context of U.S. environmental law). In the Climate Change Convention, parties agreed to "[p]romote and facilitate" both "public access to information on climate change and its effects" and "public participation in addressing climate change and its effects." Framework Convention, n. 39 above, at art. 6(a)(ii) & (iii).

[93] K. Bosselmann, n. 12 above, at pp. 22-25. It is similarly difficult to find a single specific social goal beyond the satisfaction of human needs.

[94] Ibid. at p. 24.

environmental goal. Still, it is possible to discern an overall approach to environmental and social goals.

First, the sustainable development framework is a response to deteriorating environmental conditions around the world and widespread global poverty. These, in turn, undermine and interfere with human well-being. It follows that the minimum aggregate environmental goal of sustainable development is to reduce this degradation to a level that does not interfere with human well-being, and that the minimum aggregate social goal is to eliminate widespread extreme poverty. Significantly, these minimum aggregate goals can accommodate new information and ideas. For example, the concept of "planetary boundaries" articulated in 2009 provides a way of understanding the space within which humans can operate safely, and scientific evidence indicates that several of these boundaries already been crossed.[95]   It thus makes sense to conclude that sustainable development requires actions that keep humans within (and return humans to) those boundaries. The goal of the Climate Change Convention also captures this idea of a minimum goal: "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[96] The Convention could conceivably have established a goal of returning the atmosphere to greenhouse gas concentrations that existed at the dawn of the industrial revolution, but it did not. The Conference of the Parties to the Convention, moreover, has translated that objective as "a likely chance of holding the increase in global average temperature below 2 °C or 1.5 °C above pre-industrial levels."[97] Put bluntly, the Climate Change Convention's objective is damage control. This objective, moreover, is reflected in the fact that the Convention specifies measures that parties are to undertake to both mitigate climate change and adapt to climate change.[98] Even in 1992, when the effects of human-induced climate change were much less obvious than they are now, the Climate Change Convention anticipated that parties would need to adapt to a changing climate even as they reduced their greenhouse gas emissions.

The Convention on Biological Diversity takes a similar approach. The three objectives of the Convention on Biological Diversity, as already noted, are "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. . . ."[99] But in 2002, concerned that the "rate of

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[95] J. Rockström et al., 'Planetary Boundaries: Exploring the Safe Operating Space for Humanity'(2009) 14(2) *Ecology and Society* 32 [online], *available at*. http://www.ecologyandsociety.org/vol14/iss2/art32/. *See also* R. Kim and K. Bosselmann, 'International Environmental Law in the Anthropocene: Towards a Purposive System of Multilateral Environmental Agreements' (2013) 2(2) *Transnational Environmental Law*, pp. 285–309 (arguing that protection of the integrity of Earth's life-support system should be considered as overall goal for international environmental law).

[96] Framework Convention, n 39 above, at art. 2.

[97] See, e.g., Decision 1/CP.17 (Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action), in Report of the Conference of the Parties on its seventeenth session, held in Durban from 28 November to 11 December 2011, Addendum, Part Two: Action taken by the Conference of the Parties at its seventeenth session, FCCC/CP/2011/9/Add.1, March 15, 2012. Available at: *t* http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf.

[98] Framework Convention, n. 39above, at art. 4.1(b) (all parties will adopt "measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change").

[99] Biodiversity Convention, n. 40 above, at art. 1.

biodiversity loss is increasing at an unprecedented rate, threatening the very existence of life as it is currently understood," the parties to the Convention adopted a strategic plan based on a goal of damage control.[100] To secure "a more effective and coherent implementation of the three objectives of the Convention," they agreed "to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level. . . ."[101] Then in 2010, finding that the "2010 biodiversity target has not been achieved" in spite of some progress, the parties to the convention adopted a set of 20 more precise goals, most of which are to be met by 2020.[102] The environmental aspects of these more precise goals are a mix of damage control and sustainable use.[103]

Second, the linkage between environmental quality and resource availability, on one hand, and human well-being on the other, suggests that environmental protection improves human quality of life. This indicates the value and importance of reversing negative trends beyond the minimum necessary to support and maintain human life. Such an objective may not be achievable in all cases, but it is reasonable and appropriate to conclude that ecological restoration, improved environmental quality and improved access to resources should be achieved wherever and whenever possible. That, after all, would foster and improve the human quality of life—the ultimate objective of sustainable development.

Third, a key premise of sustainable development is that governmental, business and nongovernmental decision makers will establish appropriate environmental and social goals in the specific context of the decision that they are making.[104] No one goal or set of goals will be appropriate in all contexts. The international sustainability texts refer to different goals; some things should be reduced, others increased, a few simply sustained. Moreover, the goals themselves are quite general, with few quantitative goals or timetables; the specific direction and timing of achievement of any sustainability initiatives are thus left to public private and private decision makers that choose to take these initiatives. When data and other information is unclear or conflicting, equity and the precautionary approach, two key principles in sustainable development, suggest erring on the side of human well-being and environmental protection. While the sustainable development framework provides some overall principles or guidance for setting goals, then, it does not contain a specific overall environmental or social goal. The adoption of Sustainable Development Goals, which have been proposed but not finalized at the time of this writing, will likely provide a more specific expression of the basic ideas expressed above.

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[100] Parties to the Convention on Biological Diversity, *Strategic Plan for the Convention on Biological Diversity*, COP 6 Decision VI/26 (2002). Available at: http://www.cbd.int/decision/cop/?id=7200 .

[101] Ibid.

[102] Parties to the Convention on Biological Diversity, *Strategic Plan for Biodiversity 2011-2020*, COP 10 Decision X/2 (2010). Available at: http://www.cbd.int/decision/cop/?id=12268.

[103] Compare, e.g., Target 5 ("By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced."), *with* Target 7 ("By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity."). Ibid.

[104] See, e.g., Agenda 21, n. 36 above, at ¶ 8.3 (stating that "the overall objective is to improve or restructure the decision-making process so that consideration of socio-economic and environmental issues is fully integrated . . . ." and "[w]ith the understanding that countries will develop their own priorities in accordance with their prevailing conditions, needs, national plans, policies, and programs . . . .").

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2.4. An Increasingly Used Framework

In a fundamental way, the central conceptual achievement of sustainable development is to offer an alternative to the binary "environment or development" narratives that have traditionally dominated public and private political discourse. There are those who prefer the environment to development, and those who prefer development to the environment. In this scheme, both sides are usually willing to make minor concessions to the other so long as their single and primary objective is substantially unaffected. But there had been precious little space for those who seriously sought to advance both at the same time. By creating a space for new approaches to development based on equity that produce both environmental and non-environmental benefits, sustainable development provides a way for public and private decision makers in all countries to get past the apparent conflict between development and environment.

The ubiquity of the terms sustainability and sustainable development, in a sweeping range of areas of human endeavor, the explosion in their use since 1986, and the creativity they have unleashed, suggest the power of opening up that space. Sustainability inspires us to change our way of life and develop new solutions to problems that are intractable if the only solutions are development or the environment, but not both.

Four reviews of sustainability activity in the United States, published roughly every five years since the 1992 Earth Summit, track the real but limited progress made in the United States over the past two decades. The first review, in 1997, conducted by one of the authors and students in a seminar, found little progress.[105] The next three reviews were books to which both of the authors of this article contributed. The 2002 review, *Stumbling Toward Sustainability*, was written by more than three dozen experts, with a wide range of perspectives and disciplines, from universities, nongovernmental organizations, and the private sector, who assessed progress over a wide range of topics. They concluded that in "virtually every area of American life, a few people and organizations are exercising leadership for sustainability."[106] The 2009 review, *Agenda for a Sustainable America*, based on essentially the same set of contributors, found that the U.S. "has made significant progress since 2002 in at least six areas: local governance, brownfields redevelopment, business and industry, higher education, kindergarten through 12th grade education, and religious organizations."[107] The most recent review, published in 2012 and entitled *Acting as if Tomorrow Matters: Accelerating the Transition to Sustainability*, is based on contributions from 51 experts in a wide variety of fields. It found that while "the United States has made some progress in the two decades since the Earth Summit," the "sustainability destination is now farther away than it was in 1992," largely because of the growing challenge of climate change.[108] The review continues:

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[105] J. Dernbach and the Widener University Law School Seminar on Law and Sustainability, 'U.S. Adherence to its Agenda 21 Commitments: A Five-Year Review' (1997), 27 Environmental Law Reporter pp. 10,504-10,525.
[106] J. Dernbach, 'Synthesis,' in *Stumbling Toward Sustainability*, n. 3 above, at p. 2.
[107] Contributing Authors, 'Progress Toward Sustainability: A Report Card,' in *Agenda for a Sustainable America*, n. 3 above, at pp. 15, 16.
[108] Dernbach, *Acting as if Tomorrow Matters*, n. 3 above, at p. 9.

Yet there is nonetheless an emerging sustainability movement in the United States. It includes dedicated practitioners in a wide variety of fields who have thought deeply about what sustainability means in different contexts and why it is attractive, and whose day-to-day job is to make it happen, fix what doesn't work, and improve results. They are engaged in a wide variety of fields, including agriculture, energy, manufacturing, technology, community planning and development, business and industry, government, education, building construction, engineering, and law.[109]

Sustainability activities are now occurring in the public sector at the local, state, federal, and tribal levels. They are also occurring in virtually every area of business activity, and on a wide range of issues, including but not limited to education, water, oceans and estuaries, biodiversity conservation, forestry, toxic chemicals, hazardous waste, municipal solid waste, transportation and international trade. By spring 2015, for example, 691 presidents and chancellors of American and Canadian universities had signed the American College and University Presidents' Climate Commitment, pledging to take "actions to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students."[110] Nor is the United States alone; most countries are making at least some effort to move in a more sustainable direction.[111]

The integrated decision-making process required by sustainable development or sustainability shapes a variety of specific practices in every economic sector, at every level of government, and in a wide variety of nongovernmental organizations. . These practices include private certificate and labeling programs for green building, sustainability forestry, and energy savings.[112] They also include voluntary reporting and auditing standards, including the Sustainability Reporting Guidelines issued by the Global Reporting Initiative, which have emerged as the standard for corporate sustainability reporting.[113] Hundreds of major corporations have established sustainability policies and sustainability offices.[114] They have developed and are implementing strategies to achieve specific sustainability objectives (e.g., for reducing water use,

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[109] Ibid. at 9-10. There is also abundant evidence of a global movement for sustainable development; writer Paul Hawken estimates that more than a million nongovernmental organizations around the world are "working toward ecological sustainability and social justice." P. Hawken, *Blessed Unrest: How the Largest Movement in the World Came into Being and Why No One Saw It Coming* (Viking, 2007), at p. 2.

[110] American College & University Presidents' Climate Commitment, 'Text of the American College & University Presidents' Climate Commitment.' Available at: http://www.presidentsclimatecommitment.org/about/commitment. Of these, 533 had submitted climate action plans. Ibid.

[111] *See, e.g.*, A. Ross, *Sustainable Development Law in the UK: From Rhetoric to Reality?* (Routledge 2011) (assessing sustainability efforts in the United Kingdom).

[112] J. Dernbach, *Acting as if Tomorrow Matters*, n. 3 above, at pp. 156-59.

[113] Ibid. at pp. 159-60.

[114] *See, e.g.*, J. Smith, 'The World's Most Sustainable Companies of 2014' (2014), *Forbes Magazine* (Jan. 22, 2014), Available at: http://www.forbes.com/sites/jacquelynsmith/2014/01/22/the-worlds-most-sustainable-companies-of-2014/. The best corporate sustainability efforts tend to be more ambitious and successful than they were two decades ago. In a 1993 book, Paul Hawken tells the engaging story of having a company he then represented receive the Council of Economic Priorities "Environment Stewardship Award," only to realize that he did not deserve it (and that no one else did either): "What we had done was scratched the surface of the problem, taken a few risks, put a fair amount of money where our mouths were, but in the end the impact on the environment was only marginally different than if we had done nothing at all." P. Hawken, *The Ecology of Commerce: A Declaration of Sustainability* (HarperBusiness 1993), at p. xi.

greenhouse gas emissions by a specific amount by a particular date). They also work cooperatively to improve the communities in which they operate and publicly report on their sustainability activities. In so doing, they reduce costs and improve their profitability.[115]

Best practices for sustainability are being developed and continuously refined and improved in a variety of other fields, such as higher education, chemical manufacturing, and the practice of law.[116] In addition, better tools for integrating social, economic, and environmental information for decision making are being more broadly applied, including accounting for ecosystem services, industrial ecology, and environmental management systems.[117]

Sustainable development or sustainability has also influenced the development and implementation of law in a variety of ways. A great many state and federal laws foster greenhouse gas reductions; renewable energy; energy efficiency and conservation in buildings, transportation, and industry; and distributed energy.[118] Sustainable development ideas also frame laws in a wide variety of other contexts, including brownfields redevelopment,[119] smart growth,[120] public access to information,[121] recycling,[122] biodiversity conservation, [123] and green building.[124] Indeed, the U.S. Environmental Protection Agency is increasingly integrating sustainability into the implementation of the laws it administers.[125] In 2001 the Oregon legislature established sustainability as that state's policy and created administrative mechanisms and specific goals to

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[115] A. Savitz & K. Weber, *The Triple Bottom Line* (Jossey-Bass 2013).

[116] J. Dernbach, *Acting as if Tomorrow Matters*, n. 3 above, at pp. 160-61.

[117] Ibid. at pp. 167-72.

[118] Ibid. at pp. 34-35 (summarizing national measures to address climate change); S. Ferrey, 'Solving the Multimillion Dollar Constitutional Puzzle Surrounding State "Sustainable" Energy Policy' (2014), 49 *Wake Forest Law Review*. pp. 121-185, at 122 (describing five different types of state energy laws that are "the primary pillars of sustainable energy policy in the United States"—net metering, renewable portfolio standards, renewable system benefit charges, carbon/greenhouse gas regulation, and feed-in tariffs).

[119] J. Eisen, 'Brownfields Development: From Individual Sites to Smart Growth,' in *Agenda for a Sustainable America*, n. 3 above, at pp. 57-69.

[120] P. Salkin, 'Land Use: Blending Smart Growth With Social Equity and Climate Change Mitigation,' in *Agenda for a Sustainable America*, *n.* 3 above, at pp. 349-63.

[121] C. Bruch et al., 'Public Access to Information, Participation, and Justice: Forward and Backward Steps Toward an Informed and Engaged Citizenry,' in *Agenda for a Sustainable America*, n. 3 above, at pp. 459-78.

[122] M. Chertow, 'Municipal Solid Waste: Building Stronger Connections to Jobs and the Economy,' in *Agenda for a Sustainable America*, n. 3 above, at pp. 335-45.

[123] D. Tarlock & A. Zabel, 'Biodiversity Conservation: An Unrealized Aspiration,' in *Agenda for a Sustainable America*, n. 3 above, at pp. 269-84.

[124] S. Kaplow, 'Can Green Building Law Save the Planet?' (2014) 3 *University of Baltimore Journal of Land and Development*, pp. 131-179.

[125] U.S. Environmental Protection Agency, *Fiscal Year 2014–2018 EPA Strategic Plan* (2014). Available at http://www2.epa.gov/sites/production/files/2014-09/documents/epa_strategic_plan_fy14-18.pdf (identifying "cleaning up communities and advancing sustainable development" as one of EPA's five goals and "working toward a sustainable future" as one of four cross-agency strategies); Nat'l Research Council, Committee on Incorporating Sustainability in the U.S. Environmental Protection Agency, *Sustainability and the U.S. EPA* (National Academies Press, 2011) (recommending that EPA adopt a sustainability strategy and take other actions to incorporate sustainability into its programs).

implement that policy.[126] The Oregon statute is only one of hundreds of references to sustainability in federal and state statutes in the United States alone.[127]

Two key factors drive these activities. First, sustainable development generally produces greater net benefits than conventional development. The framework can generate a variety of economic, social and environmental benefits; not just one type of benefit, or—worse—one type of benefit at the cost of others.[128] The economic, social, and environmental outcomes of a project or activity animated by sustainability are more likely to be mutually reinforcing and more positive than they would be if these outcomes offset each other in major ways. In fact, much environmental protection has been accomplished in recent years by laws that also foster economic development.[129] These more positive outcomes also include improved quality of life, cost savings, human health, environmental protection, and corporate profitability.[130]

Second, actors who fail to employ an integrated sustainability-based decision confront the growing costs and challenges of "business as usual", particularly in the face of climate change.[131] As "the demands of environmental protection, social improvement and economic development become increasingly intertwined," designers of laws and policies are increasingly drawn to using this framework, whether they intend to foster sustainable development or not.[132] These two drivers are likely to become even more important in the years ahead, as practices are improved and as population and economic growth impose greater pressures on environmental quality and resource availability.

Despite this change, progress over the last two decades has been disappointing. A consensus for faster progress was expressed at the 2012 United Nations Conference on Sustainable Development, which was held on the 20th anniversary of the Earth Summit. The final outcome document for the conference, *The Future We Want*, emphasizes the need to "accelerate progress" toward sustainability.[133] Similarly, the parties to the 2012 Conference of the Parties of the Climate Change Convention agreed on the importance of "accelerating the reduction of global greenhouse gases," and to give greater attention to climate change adaptation.[134]

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[126] O.R.S. §§ 184.421-.423. The Act defines sustainability to mean "using, developing and protecting resources in a manner that enables people to meet current needs and provides that future generations can also meet future needs, from the joint perspective of environmental, economic and community objectives." O.R.S. § 184.421. This definition is consistent with other similar definitions in international law and practice, as previously explained

[127] *See e.g.,* Cal. Water Code §10727 (development and implementation of groundwater sustainability plants); N.J.S. 13:1l-35 (New Jersey forest sustainability criteria and indicators); Ne. Rev. Stat. §2 – 1507 (Nebraska water sustainability fund); 20 ILCS 3954/20 (Illinois Green Governments Coordinating Counsel sustainability goals).

[128] *Acting as if Tomorrow Matters*, n. 3 above, at pp. 287-92.

[129] J. Dernbach, 'Creating the Law of Environmentally Sustainable Economic Development' (2011), 28 *Pace. Environmental Law Review*. pp. 614-641 (describing a variety of different environmental laws enacted in the last two decades for which economic development is an obvious outcome).

[130] *Acting as if Tomorrow Matters*, n. 3 above, at pp. 161-65.

[131] Ibid. at 165-67.

[132] M. Cordonier Segger & A. Khalfan, n. 3 above, at p. 226. *See also* E. Goode, 'Farmers Put Down the Plow for More Productive Soil,' *New York Times*, March 9, 2015, http://www.nytimes.com/2015/03/10/science/farmers-put-down-the-plow-for-more-productive-soil.html?_r=1 (explaining that "soil-conservation farming is gaining converts as growers increasingly face extreme weather, high production costs, a shortage of labor and the threat of government regulation of agricultural pollution").

[133] G.A. Res. 66/288, U.N. GAOR, 66th Sess., U.N. Doc. A/CONF.216/16 (2012). Available at: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/66/288&Lang=E.

[134] Decision 1/CP.17, n. 97 above.

3. Understanding, Answering, and Learning from "The Discontents"

There are three main lines of criticism against sustainable development and sustainability. One is that the terms are too boring to garner the kind of public enthusiasm or interest that is required. Another is that the terms are too vague to be taken seriously. The final line of criticism addressed here argues that, in light of the seriousness of accelerating climate disruption, sustainability is simply too late. These are not the only criticisms, to be sure, but they are the most prominent and serious.[135] Although each contains core truths that deserve to be taken seriously, all of them can be reconciled with the framework described in Part 2, and none of them provide an effective alternative to that framework.

What can we learn from the critics? Most obviously, definitions matter. It is essential to understand what critics mean by sustainability and sustainable development; it is similarly important for sustainable development advocates to explain what they mean. That increases the likelihood that advocates and critics will better understand each other. As explained below, for example, some categorical-sounding criticisms of sustainability are made by people who mostly agree with the framework.

In addition, it is necessary to distinguish between two kinds of criticisms. On one hand are critics who are more or less hostile to sustainable development; who would replace that concept with something else, such as resilience; or who are simply cynical or skeptical about any possibility of successfully addressing widespread environmental degradation and extreme poverty. On the other hand are those whose criticisms (constructive or otherwise) could be used to improve the manner in which sustainability projects or proposals are implemented or applied. In this latter category are people who are sympathetic to sustainability but believe that the concept has become amorphous and subject to misuse or manipulation. Here again, of course, definitions matter.

Moreover, the critics as a whole raise a challenging question about how to calibrate the sustainability message. Sustainable development is a framework for avoiding or minimizing daunting challenges, but also provides opportunities and may lead to higher human quality of life. Some critics say sustainable development is too optimistic, and others that it is too pessimistic; it is probably best to explain both possibilities.

Finally, the critics make points that could be used to improve the manner in which sustainable development projects and proposals are designed and implemented. Given the challenges confronting human society, we should take good ideas from wherever they come.

3.1. Too Boring

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[135] Another line of criticism, particularly directed against Agenda 21, n. 36 above, is that sustainability is a subterfuge for enlarging governmental power and diminishing individual freedom and property rights. This criticism is based on a bogus version of Agenda 21 that bears no serious relationship to the real Agenda 21. J. Dernbach, 'Facing Down the So-Called Agenda 21 "Conspiracy": Lessons for Planners' (2015), *Planning*, Feb. 2015, pp. 20-25.

For some, the term "sustainability" expresses an idea that is too modest or unappealing. They prefer to focus on something more positive, such as "abundance" or "thriveability."[136] While these goals are attractive, they are not alternatives to sustainable development or sustainability. Rather, these are goals that could be—and should be—considered and applied in making sustainable development decisions. They are also consistent with, and needed to further the ultimate objectives of sustainable development: human freedom, opportunity and quality of life. This perspective can add value to dialogue about sustainable development when it encourages or prods decision makers to adopt more ambitious environmental and social goals.

It is, of course, easy to imagine more exciting words than "sustainable development." It is also a concept that, after four decades, lacks novelty. Nicola Lugaresi, summarizing decades of international conferences, writes of the "unbearable tiredness of sustainable development."[137]

"[H]ow exciting is sustainability?" architect William McDonough and chemist Michael Braungart ask in their 2002 book, *Cradle to Cradle: Remaking the Way We Make Things*. [138] "If a man characterized his relationship with his wife as sustainable, you might well pity them both."[139] They also criticize the view that we should address environmental problems simply by being more efficient and polluting less—by being "less bad."[140] While eco-efficiency "is an outwardly admirable, even noble concept," they argue, "it is not a strategy for success over the long term, because it does not reach deep enough."[141] "The key is not to make human industries and systems smaller, as efficiency advocates propound, but to design them to get bigger and better in a way that replenishes, restores, and nourishes the rest of the world."[142]

McDonough and Braungart build on these themes in their 2013 book, *The Upcycle: Beyond Sustainability – Designing for Abundance*.[143] "The goal of the upcycle," they say, "is a delightfully diverse, safe, healthy and just world with clean air, water, soil, and power – economically, equitably, ecologically, and elegantly enjoyed."[144] "In other words, at this point in history, after so much damage has been done, people don't need to have less of a negative environmental footprint: They can have *a positive footprint*."[145] Their consistent message is the enormous potential of this change through creativity and imagination:

> The possibilities here are very exciting: Our world can be made truly clean, safe, and healthy when designers, engineers, and businesses embrace innovation that

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[136] Another approach is based on regenerative development. *See, e.g.*, J. Tillman Lyle, *Regenerative Design for Sustainable Development* (John Wiley & Sons, Inc., 1994); P. Mang & B. Reed, 'Regenerative Development and Design,' in *Encyclopedia Science & Technology* (McGraw-Hill 2012), pp. 2112-2145.

[137] N. Lugaresi, 'The Unbearable Tiredness of Sustainable Development (At Different Levels, Lately)', in Robert V. Percival et al. (eds.) *Global Environmental Law at a Crossroads* (Edward Elgar, 2014), pp. 195-210.

[138] W. McDonough & M. Braungart, *Cradle to Cradle: Remaking the Way We Make Things* (North Point Press, 2010), p. 155.

[139] *Ibid.*

[140] *Ibid.* at pp. 45-67.

[141] *Ibid.* at pp. 61-62.

[142] *Ibid.* at p. 78.

[143] W. McDonough & M. Braungart, *The Upcycle: Beyond Sustainability – Designing for Abundance* (North Point Press, 2013).

[144] *Ibid.* at p. 12.

[145] *Ibid.* at p. 36.

grows the good, not by continuing conventional production, making things somewhat 'less bad' and watching the metrics improve bit by bit. . . . Instead of this confusing perspective, what if ambitions were stated as: 'How can I select and use 100 percent positively defined materials and renewable energy? How can I increase prosperity, celebrate my community, and enhance the health of all species? . . . The results can be astoundingly positive and enriching."[146]

Andrés Edwards, a sustainability consultant and writer, sets out a similar perspective in *Thriving Beyond Sustainability: Pathways to a Resilient Society*: "Sustainability separates us from nature and envisions us 'getting by' by limiting our negative environmental impacts over the long term."[147] "Thriveability," by contrast, "embodies the innate qualities that define our humanity – our capacity for empathy, compassion, collaboration, playfulness, creativity, enthusiasm and love."[148] He continues: "The thriveable perspective asks, 'How can we satisfy basic human needs such as food, water, shelter, education, healthcare and love for all people on the planet while creating a meaningful life?'"[149] For Edwards, thriveability drives better outcomes: "Instead of a net-zero energy home, the thriveable goal is a home that generates more electricity than it uses; instead of restoring an ecosystem in decline, the thriveable goal is to regenerate it so that it teems with diverse wildlife and is integrated with flourishing human settlements.[150]

In spite of these authors' criticisms of sustainability, however, their thinking largely tracks the sustainable development decision-making framework described above. When Edwards asks how we can satisfy basic human needs, he is posing the exact question the Brundtland Commission posed. When McDonough and Braungart ask how we can design "not just for health but for abundance, proliferation [and] delight,"[151] they plainly endorse, at a minimum, the satisfaction of human needs. These authors all recognize the importance of an approach that combines environmental protection, social well-being and economic development.[152] When Edwards combines human needs with regenerated ecosystems, he is employing the integrated decision-making framework that is central to sustainable development. Similarly, McDonough and Braungart say that "we have come to see that human beings are essentially in agreement on what

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[146] Ibid. at p. 81. An example is agriculture: "We might create farming techniques that sustain the longest period of productivity, augment the soil for optimal plant growth, utilize soil in the most compact way, and diversify the design of that growth for different locations." Ibid. at p. 125. To scale up the use of their ideas in specific contexts, McDonough and Braungart have established a Cradle to Cradle Products Innovation Institute and a Cradle to Cradle certification program for qualifying products. Ibid. at pp. 198-99. *See also* Cradle to Cradle Products Innovation Institute, http://www.c2ccertified.org/.

[147] A. Edwards, *Thriving Beyond Sustainability: Pathways to a Resilient Society* (New Society Publishers, 2010), p. 149.

[148] Ibid. at 4-5.

[149] Ibid. at 165.

[150] Ibid. at 164-65.

[151] W. McDonough & M. Braungart, *The Upcycle: Beyond Sustainability – Designing for Abundance*, n. 143 above, at p. 11.

[152] Ibid. at p. 147 ("[W]e know that if you put people, planet, and profit at the *triple top line* [meaning that they are an organization's "top values"], good effects cascade down and outward."); A. Edwards, *Thriving Beyond Sustainability: Pathways to a Resilient Society,* n.147 above, at p. 48 (describing the business community's embrace of the triple bottom line as a "milestone" in its change toward more thriveable practices).

is needed to integrate ourselves into the natural upcycle of life."[153] They all identify intergenerational equity[154] and the precautionary approach[155] as essential to their life-affirming visions. As explained above, both of these principles are key to sustainable development.

These authors seem focused on a relatively discrete subset of activities, including building design and architecture, community planning, landscaping, and product design. While sustainability can accommodate terms such as thriveable in those contexts, terms like thriveable are not likely to work as effectively as sustainability or sustainable development in other contexts. For example, while we may doubt whether the fish labeled "sustainable" at our local grocery store was, in fact, harvested in a manner consistent with sustainability based decision-making, there are questions we can ask to lead us to a more informed opinion. We can ask whether, in light of current harvest rates and methods, future generations of people will have the option of purchasing the fish, as we do.[156] If the fish were labeled "thriveable," we would have no idea whether to buy it or not.

In addition, the implication that "mere" sustainability necessarily discourages ecological restoration, homes that generate energy and other "net positive" activities is wrong. The objective of sustainable development is human well-being, and all of these activities contribute to that objective. Moreover, as previously explained, the term does not automatically imply any particular type of environmental goal; they vary from issue to issue and place to place. There is nothing in the history of the term that explicitly limits sustainability goals to merely being "less bad." Moreover, by opening up a space for developing and implementing laws, policies, technologies and other actions that maximize the net environmental *and* development benefits of particular actions, sustainable development makes possible, and should encourage, more abundant and thriveable outcomes.

Still, it is not hard to see the origins of this misunderstanding. In the context of the continuing and widespread global environmental degradation against which the term sustainable development originated, "sustainable" describes a minimum system condition for environmental quality and resource availability; it is a damage control term. The primary task of doctors and other medical professionals in a hospital emergency room, where many patients have experienced a serious or life threatening injury or conditions, is to stabilize their condition.[157] Stabilizing their

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[153] W. McDonough & M. Braungart, *The Upcycle: Beyond Sustainability – Designing for Abundance*, n. 143 above, at p. 214.

[154] Ibid. at p. 9 ("We wanted our products to be a positive contribution not only to this generation of living creatures but to future generations, to the whole world."); A. Edwards, *Thriving Beyond Sustainability: Pathways to a Resilient Society,* n.147 above, at pp. 155-57 (explaining the importance of an "intergenerational outlook").

[155] W. McDonough & M. Braungart, *The Upcycle: Beyond Sustainability – Designing for Abundance*, n. 143 above, at p. 217 (stating that the precautionary principle is "about being alive and well"); A. Edwards, *Thriving Beyond Sustainability: Pathways to a Resilient Society,* n.147 above, at pp. 161-63 (explaining the importance of the precautionary principle to "[l]ife-affirming initiatives" that support "long-term, regenerative activities").

[156] We can also ask whether current harvesting techniques damage ecosystems even if that damage does not directly affect the number of fish available to buy now or in the future (ecological integrity). We can ask whether the money we pay for the fish will be distributed equitably among the humans who have brought it to our local grocery store (social justice). We can ask whether uncertainties associated with the environmental and human impacts of our potential purchase have been considered and how they have been taken into account (precautionary approach). We can also discover whether the local grocery store is even capable of answering the questions (public participation).

[157] *See* Education Portal, 'Emergency Physician: Job Description and Educational Requirements.' Available at: http://education-portal.com/articles/Emergency_Physician_Job_Description_and_Educational_Requirements.html.

condition hopefully enables them to recover their health. Similarly, many environmental conditions on the planet would be vastly improved if they were now merely sustainable. As already explained, these include, but are not limited to, greenhouse gas emissions and the loss of biodiversity.[158] In that sense, sustainability is more ambitious than it might first appear, and continually making things "less bad" is an essential task. Yet it is not the same as healthy or abundant.

Against these challenges—when the overwhelming temptation of decision makers is to slow down the rate at which environmental quality gets worse, when reducing damage to an acceptable level seems the best possible outcome—these critics ask decision makers to be both more ambitious and more positive than they might otherwise be inclined to be. The urgency of many of the challenges that confront us makes these voices important. They can, for example, prod decision-makers toward breakthrough improvements as opposed to always being satisfied with incremental improvements.

These critics also capture a core truth about the transition to sustainability: the transition is likely to be more effective, more enduring, and broader in scale if it is seen, not as somewhat more attractive than our current situation, but as vastly more attractive: so much better that it provides the momentum or impetus to overcome all of the various obstacles that stand in the way. While sustainable development requires much more than new technologies, the diffusion of recently developed technologies provides a way of understanding how the transition to sustainability needs to work.[159] In a very short period of time, personal computers virtually displaced typewriters, and cell phones largely displaced conventional phones. They did so because they offer enormous advantages over the technologies they displaced. One can imagine a similarly rapid transition away from fossil fuel-based electricity and toward renewable energy if the price of solar or wind power technologies fell significantly below current market rates and these technologies were deployed at scale. Alternatives of the kind suggested by these authors, perhaps facilitated by appropriate enabling laws, could also accelerate the transition to sustainability. More broadly, these critics suggest that the term is not sufficiently motivational. Of course, as suggested above, attractive futures and alternatives are motivational. But so are threats and risks, particularly if they are large and immediate enough. The challenge for sustainability is that most of its threats are cumulative and unfold over time, and therefore tend to lack the same urgency as a military or terrorist attack. This suggests the need for a variety of other tools to convey the urgency of sustainability and motivate appropriate changes, including better information about impacts of unsustainable development, better communication of those impacts, and greater use of behavioral mechanisms to "nudge" people and institutions toward sustainability.

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[158] *See also* G. Harris, 'Delhi Wakes Up to Problem It Cannot Ignore', *New York Times*, Feb. 15, 2015, at p. 6 (describing extremely unhealthy levels of air pollution in Delhi, India); D. Fears, 'Clawing Their Way Back', *Sunday Patriot-News* (Harrisburg, Pa.), Feb. 15, 2015, at p. A19 (describing steep recent decline in population of blue crabs in the Chesapeake Bay); V. Mallet, 'The Ganges: Holy, Deadly River', *Financial Times Magazine*, Feb. 3, 2015, http://www.ft.com/cms/s/2/dadfae24-b23e-11e4-b380-00144feab7de.html#slide0 (describing extensive and continuing pollution of Ganges River).
[159] E. Rodgers, *Diffusion of Innovations* (The Free Press, 5th ed., 2003).

3.2. Too Vague

By far the most common criticism of the concept of sustainability is that we still—after 35 years of discussion—are unable to reduce it to a universally comprehensible formula. For many people sustainability is simply another word for something "green", adding only a "buzzword" but nothing of substance to the conversation. These criticisms often reflect little awareness of the historical origin of sustainability—either on the part of the person or organization that claims to be acting in a sustainable way, or of the critic, or both. As noted above, plugging the word "sustainability" into the Google Ngramreader – which charts the frequency of the use of words and phrases in books digitized in the Google Books Project -- shows the dramatic rise of the term. "Sustainable development" has followed a similar, if slightly less spectacular, trajectory.[160] Words and phrases used so frequently in so many contexts must, inevitably, be misused. Unfortunately, this lack of awareness is shared – to a varying degree -- by legislators who employ the term. A wide variety of sustainability definitions have been enacted into law.[161]

Yet sustainable development has a relatively definite meaning, as explained in Part 2 of this article. Because sustainable development is intended to integrate development with environmental protection, environmental protection is at its core. Still, many of the critics make a contribution by identifying gaps in the framework and suggesting ways of addressing those gaps.

The claims about the vagueness of sustainability fall into several categories, some of which are easier to answer than others. Some argue that sustainability can mean anything at all, and therefore means nothing.[162] As a matter of logic and the numerous obvious existing examples of admittedly unsustainable development, however, sustainability cannot embrace everything.[163]

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[160] See n. 6 above.

[161] See e.g., 42 U.S.C. § 6371h-1("The term "energy sustainability" includes using a renewable energy source, thermal energy source, or a highly efficient technology for transportation, electricity generation, heating, cooling, lighting, or other energy services in fixed installations."); Cal. Water Code §10721(defining "sustainable groundwater management" to mean "use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results."); Cal. Pub. Res Code §35550(e)(defining "sustainable" and "sustainability" to mean both "Continuous replacement of resources, taking into account fluctuations in abundance and environmental variability" and "Securing the fullest possible range of present and long-term economic, social, and ecological benefits, while maintaining biological diversity"); N.J.S. 13:1L-30 ("'Sustainability' means, with respect to forest land, having the ability to: (1) maintain its ecological processes, biodiversity, resource productivity, regeneration capacity, and vitality; and promote forest health, preclude the spread of invasive non-native species, maintain forest integrity and contiguity, preserve New Jersey's native biodiversity, and protect endangered and threatened species and species of special concern and the habitat that sustains them; and (2) realize the potential to fulfill now and for future generations, relevant ecological, environmental, economic, and social functions, including but not limited to protection and improvement of air quality and of water supply and water quality, stabilization of soils, prevention and suppression of uncontrolled wildfires, service of markets for forest products, provision of recreational opportunities, and improvement of quality of life."), M.S.A. §17.114 (""Sustainable agriculture" represents the best aspects of traditional and modern agriculture by using a fundamental understanding of nature as well as the latest scientific advances to create integrated, self-reliant, resource conserving practices that enhance the enrichment of the environment and provide short- and long-term productive and economical agriculture.").

[162] See, e.g., H. Farley & Z. Smith, *Sustainability: If It's Everything, Is It Nothing?* (Routledge, 2014).

[163] In a basic way, the argument about the definition of sustainable development is no different from an argument about the meaning of freedom or justice. Sustainable development is like these other concepts because each has a certain core meaning, however general that meaning may be. Reasonable people may disagree about whether sustainable development, freedom, or justice exist in a particular situation, and just as significantly, on situations in

Still others see the term as an oxymoron; development, they say, is inconsistent with environmental protection. If sustainable development is synonymous with sustainable growth, then it truly is an oxymoron.[164] Sustainable growth is a business term for an optimal growth rate. Growth, particularly conventional economic growth, is a driver for unsustainable development. But sustainable growth is not sustainable development because growth is not a framework for integrated decision-making and because it is not directed expressly at human well-being.

Another version of this argument, broader but similar, is based on historical precedent. Because conventional development damages the environment and people who depend on the environment, the argument asserts, combining development with environmental protection is incoherent.[165] But the point of sustainable development is to transform conventional development, not to relabel it. The premise of sustainable development is that such a transformation is possible, indeed necessary. The challenge this presents to the modern worldview, which is based on overwhelming evidence that development occurs only at the expense of the environment and the people who depend on it, cannot be overstated. Many simply do not believe that humans can or should live in harmony with nature, rather than at nature's expense.

This problem is similar to that presented by new scientific paradigms, and will likely be resolved in a similar way. New scientific paradigms are based on, and therefore require, changes in world view.[166] As a result, they require scientists to choose between the old and the new paradigm. Many who are wedded to the old paradigm will fail to understand the new one and will resist. If supporters of the new paradigm "are competent, they will improve it, explore its possibilities, and show what it would be like to belong to the community guided by it." In time, if all goes well for them, they will gain more supporters and practitioners, until eventually the new paradigm prevails.[167] Similarly, as explained in Part 2, there is a large and growing body of sustainable development practitioners (including lawyers and law makers) who are working out the meaning of the term in specific places and sectors, and who are devising and continually improving a variety of practices that are directed toward sustainable development. If sustainability succeeds, it will do so because more and more practitioners adopt its conceptual framework, until eventually conventional development becomes a relic of the past.

The challenge that sustainability presents to its critics is to improve and strengthen the framework, and its application in specific places and sectors, and not to simply criticize it. That is the process by which a great many ideas related to environmental protection have grown in

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which they do not. As Amartya Sen explains, we can identify specific examples of injustice long before we can explain conceptually what justice means. A. Sen, *The Idea of Justice*, n 65 above, at pp. vii-viii. Similarly, continued high levels of greenhouse gas emissions, or clearing a rain forest and causing the impoverishment of the people living there, are not likely to fit any reasonable observer's definition of sustainable development. If sustainable development could mean anything at all, it would include these examples. As noted above, Lester Brown in his 1981 *Building a Sustainable Society*, defined sustainability largely in terms of the absence of sustainable behavior. Because sustainable development cannot include demonstrably unsustainable environmental or social practices, it cannot mean everything. See n. 28 above.

[164] H. Daly & K. Townsend, *Valuing the Earth: Economics, Ecology, Ethics* (MIT Press, 1993), p. 267.

[165] R. Kates, T. Parris, & A. Leiserowitz, 'What is Sustainable Development? Goals, Indicators, Values, and Practice,' (2005) 47(3) *Environment: Science and Policy for Sustainable Development*, pp. 8-21, at 20.

[166] T. Kuhn, *The Structure of Scientific Revolutions* (The University of Chicago Press, 4th ed., 2012) pp. 111-34.

[167] Ibid. at pp. 157-58.

clarity and sophistication over time. Protection of wetlands in the United States, for example, can be traced to a 1907 publication where "wetland" was used as a "euphemistic substitute for the term swamp."[168] Its first official use was in a 1956 circular issued by the Fish and Wildlife Service.[169] Now the U.S. has a sophisticated wetlands protection program.[170] In sustainable development, as suggested above, there is considerable evidence that improvements in the framework and its application to specific situations are occurring more quickly than they did for wetlands.

Another and persistent line of criticism is that the sustainable development framework does not provide a complete program that one can simply follow.[171] It is true that many of the questions that must be answered to achieve sustainability are not answered by the sustainability framework, or are answered only partially. That, however, is a strength of the framework, not a weakness:

> [S]ustainable development draws much of its resonance, power, and creativity from its very ambiguity. The concrete challenges of sustainable development are at least as heterogeneous and complex as the diversity of human societies and natural ecosystems around the world. As a concept, its malleability allows it to remain an open, dynamic, and evolving idea that can be adapted to fit these very different situations and contexts across space and time.[172]

There is no precise and complete one-size-fits-all program for sustainability, and gaps remain to be filled. But the specific approaches that have been developed for specific issues, including sustainable forestry, green building, and corporate sustainability reporting, do provide reasonably complete programs that one can follow in those contexts. These specific approaches, all of which are based on the overall sustainability framework, continue to be developed. Even when these more specific approaches are developed, however, the overall sustainability framework provides a way of analyzing and evaluating whether they are truly sustainable.

Other criticisms that sustainability is "too vague" are based on the argument that the concept is not sufficiently protective of the environment – vagueness as "greenwashing." This argument is similar to, but not the same as, the claims examined earlier about the limited psychological appeal of "mere sustainability." Instead, "vagueness as greenwashing" critics claim is that sustainability dilutes or weakens environmental protection. There are at least two related lines of argument.

A first line of "vagueness as greenwashing" criticism draws on a distinction by economists between "weak sustainability" and "strong sustainability." According to the weak sustainability perspective, "the next generation should inherit a stock of wealth, comprising man-made assets and environmental assets, no less than the stock inherited by the previous generation."[173] The

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[168] National Research Council, *Wetlands: Characteristics and Boundaries* (National Academies Press, 1995), p. 43.
[169] Ibid. at p. 48.
[170] For a comprehensive overview of these programs, see M. Strand & L. Rothschild, *Wetlands Deskbook* (Environmental Law Institute, 3rd ed., 2010).
[171] See, e.g., R. Kates, T. Parris, & A. Leiserowitz, n. 165 above, at p. 20.
[172] Ibid.
[173] D. Pearce *et al.*, *Blueprint for a Green Economy* (Taylor & Francis, Inc., 1989) p. 34.

strong sustainability perspective, by contrast, is "that the next generation should inherit a stock of environmental assets no less than the stock inherited by the previous generation."[174] Weak sustainability differs from strong sustainability in that it permits the depletion of natural stock or capital (e.g., forests, wetlands) so long as the total stock of human and natural capital for the next generation (including buildings or products made from forests and development based on filling the wetland) is at least as great as that available to the present generation. "According to the weak sustainability view, there is essentially no inherent difference between natural and other forms of capital, and hence the same optimal depletion rules ought to apply to both."[175] Of course, weak sustainability offers a vastly lower level of environmental protection than strong sustainability, if it provides any environmental protection at all. The deforestation of the United States from colonial times to the 20th century could be justified on weak sustainability grounds because of its contribution to economic development and capital formation.[176]

One can see forms of weak sustainability expressed in a variety of contexts. Robert Engelman suggests that sustainability has become almost meaningless "sustainababble."[177] He writes, "[t]oday the term sustainable more typically lends itself to the corporate behavior often called greenwashing. Phrases like sustainable design, sustainable cars, even sustainable underwear litter the media."[178] Indeed, advocates of strong sustainability often see in weak sustainability an effort by corporate and business interests, in particular, to water down the meaning—and therefore the impact—of sustainability.[179]

The strong sustainability perspective is more closely aligned with the historical understanding of sustainability. Many natural assets perform functions that cannot be replicated no matter how much capital a society accumulates.[180] We have known for several decades that the total economic value of "nature's services," including the watershed protection function of forests and the role of microorganisms in creating and maintaining soil, is enormous.[181] Scientific uncertainty about the existence and extent of all of these natural services counsels caution about

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[174] Ibid.

[175] D. Pearce and E. Barbier, *Blueprint 6: Blueprint for a Sustainable Economy* (Earthscan 2000) p. 24.

[176] *See* T. Cox et al., *This Well-Wooded Land: Americans and Their Forests from Colonial Times to the Present* (University of Nebraska Press, 1985) (history of logging in United States that also describes third contribution of logging to economic development and capital formation).

[177] R. Engelman, 'Beyond Sustainabbable' in E. Assadourian (ed.) *State of the World 2013: Is Sustainability Still Possible*? (Island Press, 2013), p. 3.

[178] Ibid. (emphasis omitted).

[179] *See, e.g.*, E. J. Yanarella & R. S. Levine, 'From Sustainability to Resilience: Advance or Retreat?' (2014), 4(7) *Sustainability* pp. 197-208, at 197:

> A decade or so ago, a wide-ranging campaign to tame strong sustainability language and objectives took place. This movement worked to supplant sustainability with the green revolution led by many institutions and organizations, and it amounted to pursuing only one leg of the sustainability tripod through what amounted to greenwashing or weak sustainability techniques.

[180] *Blueprint for a Green Economy*, n 173 above, at pp. 37-38.

[181] The classic article on this topic remains R. Costanza *et al.*, 'The Value of the World's Ecosystem Services and Natural Capital' (1997) 387 *Nature* pp. 253-260 (estimating of ecosystem services at an average of $33 trillion per year, compared to global gross national product of $18 trillion per year).

depleting them.[182]   Once they are lost (e.g., a species), they cannot be replaced.[183]   Finally, protection of natural capital is particularly important for many of the poor because they "tend to be more dependent on natural resources" for their livelihoods.[184]   Although *some* substitution of natural capital for human-made capital is inevitable and desirable even in a sustainable society, a stronger form of sustainability is preferable to, and more consistent with the evolving understanding than, a weaker one.

A second "vagueness as greenwashing" criticism is about the weight given to the environment when environmental, social, and economic, considerations and goals are brought together in decision making.   The proper approach to tradeoffs among the environmental, social, and economic dimensions of sustainability is an important and often overlooked issue.   Much of the sustainability dialogue is about "win-win-win" outcomes, meaning that a decision maker can improve environmental quality, save money, and create jobs in the same decision.   Such outcomes are possible, even easy, on many sustainability issues, such as energy conservation and efficiency.   One reason tradeoffs don't get more attention is that much of sustainability's "low hanging fruit" has not been harvested.   In addition, if not handled correctly, tradeoffs can lead straight back to conventional development.

Still, the sustainable development literature does address tradeoffs.   Trade-off rules include systems that allow better outcomes in one aspect of a proposal (economic) to totally or partially compensate for poorer outcomes in another aspect of a proposal (environmental or social). Another and preferable option is to prohibit "natural or environmental capital" from being "traded off against produced or manufactured capital."[185]   A somewhat similar rule is that "trade-off decisions must not compromise the fundamental objective of net sustainability gain."[186]   Use of the latter two trade-off rules would make achievement of the environmental protection and social well-being aspects of sustainability more likely, not only for the present generation but also for future generations

Several authors who are critical of sustainable development argue that tradeoffs should be addressed simply by putting the environment first.   Heather Farly and Zachary Smith argue that sustainability is not sufficiently protective of the environment: "Sustainability has been co-opted into the sustainable development discourse where development is first and foremost about human survival and meeting human needs, but does not necessarily have much to do with genuine sustainability, which is reliant upon the continuation of the earth."[187]   The solution, Farly and Smith claim, is not to abandon sustainability but to adopt "a stricter interpretation" of the term that

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[182] *Blueprint for a Green Economy*, n. 173 above, at p. 38.
[183] Ibid. *See also Blueprint 6: Blueprint for a Sustainable Economy*, n. 175 above, at p. 23 (stating other uncertainties in determining "whether environmental resources are being exploited sustainably and efficiently over time").
[184] Ibid. at pp. 38-40.
[185] Organization for Economic Cooperation and Development, *Guidance on Sustainability Impact Assessment* (Paris: Organization for Economic Cooperation and Development, 2010), p. 23.
[186] R. Gibson, 'Sustainability Assessment: Basic Components of a Practical Approach,' *Impact Assessment and Project Appraisal* (2006) 24(3), pp. 170–82, at 175. *See also* R. Gibson et al, *Sustainability Assessment: Criteria and Processes* (Earthscan 2005), pp. 176-78, 237-38.
[187] H. Farley & Z. Smith, note n. 162 above, p. 150.

corrects "the broad interpretation."[188] They call their modification "neo-sustainability," which is "the ability of an activity to sustain a system by improving its quality and operating within its limits."[189] Because "the environmental system is foundational,"[190] the three rules they posit for neo-sustainability all relate to the environment:

1. *Limits*: there are natural limits to growth.
2. *Environmental primacy*: these limits are dictated by the environment, and therefore actions in any system must adhere to the carrying capacity of the earth's natural systems.
3. *Systems thinking*: because environmental, economic and social systems are nested systems, actions must be based on systems thinking, which accounts for multi-level impacts and the influences that generate impacts.[191]

The "cradle to cradle" model described above is one of several "commonly adopted frameworks" that, in their view, support "the rules of neo-sustainability."[192]

Klaus Bosselmann has a similar critique of how sustainability has been applied, and a somewhat similar proposal.[193] He is most critical of an understanding of sustainability that involves the balancing of social, economic and environmental concerns. To the extent sustainability is understood that way, he argues, it is meaningless because it provides no guidance for how that balancing should occur. "Clarity," he says, "can only come from defining the essence of 'sustainable' with respect to its object. The essence is neither 'economic sustainability,' nor 'social sustainability,' nor 'everything sustainable,' but 'ecological sustainability.'"[194] The core meaning of sustainability, in other words, is "ecological integrity."[195] The relationship of the social, economic, and environmental aspects of sustainability, he argues, can be summarized as follows: "No economic prosperity without social justice and no social justice without economic prosperity, and both within the limits of ecological sustainability."[196]

In a fundamental way, these critiques are less about sustainable development as understood through its history than they are about how some individuals and organizations apply the term. As Bosselmann recognizes, any version of sustainability that simply involves balancing of economic,

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[188] Ibid. at p. 163.
[189] Ibid. at p. 151.
[190] Ibid.
[191] Ibid.
[192] Ibid. at pp. 158, 162. Other frameworks that support their approach include economist Kenneth Boulding's "spaceman economy," in which "the earth is a closed system much like a spaceship." Ibid. at p. 158. Another is The Natural Step framework, which develops a framework for sustainable practices that establishes "four system conditions for sustainability" that are broadly consistent with environmental primacy. Ibid. at p. 159. Still another is environmental justice, because environmental degradation hurts other people. Ibid. at pp. 160-162. Finally, neo-sustainability has the potential to reduce the ecological footprint—"a representation of an organization's or individual's demand on the earth's ecosystems"—of individuals and societies. Ibid. at p. 162.
[193] K. Bosselmann, n. 12, at pp. 43-77.
[194] Ibid. at pp. 52-53.
[195] Ibid. at p. 76. Put differently, "development is sustainable if it tends to preserve the integrity and continued existence of ecological systems; it is unsustainable if it tends to do otherwise." *Id.*
[196] Ibid.

social, and environmental objectives is inconsistent with the historical context in which the term originated.[197] As previously explained, widespread and growing environmental degradation was a basic reason why development needed to be made sustainable. The whole point of sustainable development is to integrate development with environmental protection. In fact, greater levels of environmental protection are more likely to be achieved if the environment is integrated into decisions about development. Thus, any application of sustainability that does not have environmental protection at its core is simply wrong.

By their insistence on the importance of "environmental primacy" and "ecological integrity," these critics make it less likely that environmental protection will be diluted within the larger frame of sustainable development. As previously explained, it is difficult if not impossible to find in the original texts a single understanding of what environmental protection is supposed to mean, and only general statements of what is to be achieved in particular contexts. Thus, public and private decision makers are free, within the sustainability framework, to adopt environmental goals of the kind these critics advocate. This is fully consistent with that framework because, as already explained, more robust environmental goals are more likely to enlarge human freedom, opportunity, and quality of life.

That said, an understanding of sustainable development based on putting the environment first must come to terms with the social dimension of sustainability—reducing and eliminating extreme poverty—and more broadly with the challenge of improving human well-being. While environmental protection is at the core of sustainability, the social dimension is also at its core. That suggests the importance of more nuanced tradeoff rules that attempt to give full effect to each dimension of sustainability, as several rules from the sustainable development literature appear to do. More generally, it is essential for decision makers to be transparent with the public and their stakeholders about the tradeoff rules that they do employ.

A final source of claims that sustainable development is insufficiently protective of the environment is provided by the use of sustainability-sounding concepts in law that do not, in practice, protect the environment or achieve sustainable development. The United States Federal Multiple-Use Sustained-Yield Act of 1960[198] defines "sustained yield" of the several products and services to mean "the achievement in maintenance in perpetuity of a high level annual regular periodic output various renewable resources of the national forest without impairment of the productivity of the land." Sustained yield has deep roots in forestry and related natural resource fields.[199] "Sustained yield" is not sustainable development or sustainability, however. At its best, "sustained yield" requires perpetual output of specific resources without obvious damage to the ecosystems that produce them. Otherwise, its history is almost entirely distinct from the history of sustainable development. It does not require integrated decision-making. On the contrary, it militates in favor of simplified decision-making based on projected yield of specific resources and

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[197] Ibid. at pp. 55-57.
[198] 16 U.S.C. §§528-531.
[199] S. Hayes, *Conservation and the Gospel of Efficiency*,(University of Pittsburgh Press, 1999) p. 28 (" During the 1890s the organized forestry movement in the United States shifted its emphasis from saving trees from destruction to promoting sustained yield forest management. According to this viewpoint, to provide a continuous supply of timber for the future, annual cutting should never exceed annual growth, and lumbermen should utilized waste materials and reduce fire and disease damage.").

emphasizes high levels of production. It requires consideration of neither social justice nor economic viability.

Despite its limitations, sustained yield is a popular concept in United States federal law. The United States Forest Service commitment to sustained yield is reaffirmed in the National Forest Management Act.[200] The Federal Land Management and Policy Act of 1976 extended the concept of sustained yield to public lands subject to the jurisdiction of the United States Department of the Interior.[201] Additional legislation requires sustained yield in management of American Indian forest land.[202] The concept has migrated beyond the realm of forestry in which it emerged. The Magnuson-Stevens Fisheries Conservation and Management Act requires each Regional Fishery Management Council[203] to prepare fishery management plans regarding fisheries within its responsibility. Each fisheries management plan must specify "the maximum sustainable yield and optimum yield from . . .the fishery."[204] The statute includes a definition of "'optimum', with respect to the yield from a fishery", but it provides no definition of "maximal sustainable yield."[205]

To add to the confusion, the Biodiversity Convention defines "sustainable use" as "the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations."[206] While rooted in sustainable development, , the Convention's use of the word "rate" echoes sustained yield thinking.

It is extremely important to keep "sustained-yield" and "sustainable development" distinct. Sustained yield is a narrow goal, arguably demonstrable through evidence of long-term consistent harvest levels. Sustainable development requires an integrated decision-making framework which prescribes no specific goals and requires consideration of a range of factors often ignored in sustained yield planning.

3.3. Too Late

The final criticism—and one that has been voiced more frequently in recent years—is that in some fundamental way it is too late to make sustainability work and that current and future conditions make sustainable development impossible. Some critics base their analysis on worsening overall environmental conditions, while others focus on climate disruption. All find a touchstone in "resilience," which they believe to be more realistic and appropriate than sustainability. Some would replace sustainability with resilience in every context. Others would place greater emphasis to resilience, but would not abandon sustainability. We fear that adopting resilience as a substitute for sustainable development would allow decision-makers to ignore human well-being, persistent global poverty, and social equity. Without using the term, this shift

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[200] 16 U.S.C. § 1607.
[201] 43 U.S.C. § 1732(a).
[202] 25 U.S.C. § 3104(b)(1).
[203] 16. U.S.C. §1852.
[204] 16 U S.C. §1853(a)(3).
[205] 16 U.S.C. §1802(33).
[206] Biological Diversity Convention, n. 40 above, at art. 2.

allows decision-makers to adopt "lifeboat ethics,"[207] where the preservation of a few people can justify abandoning many. Resilience allows us to turn a blind eye to social justice. Sustainability does not.

The idea of resilience has its roots in the analysis of ecological systems,[208] but since its inception the concept has been utilized effectively in many scientific fields, from mechanics to psychology. The essential idea is that consumer goods and societal infrastructures can and should be constructed in a manner that is resilient to the inevitable adverse effects of future impacts.[209] This concept stresses the importance of durability and elasticity in social design. In 2012 and 2014 reports on disasters and coastal risk, the National Academy of Sciences defined resilience as "the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events."[210] More succinctly, perhaps, Dennis Meadows, one of the authors of one of the influential 1972 Club of Rome Report, *The Limits of Growth*,[211] has described resilience as the "capacity of a system to absorb shocks and to continue functioning."[212]

Meadows believes that resilience should replace sustainability. He has come to believe that some collapse of civilization has become inevitable as we have continued to increase population and resource consumption over the past four decades. His view of sustainable development, he says, is based on popular understanding:

> When I use the term sustainable development—which I consider to be an oxymoron actually—I am trying to capture the meaning that most people seem to have. In so far as I can tell, people who use the term mean, essentially, that this would be a phase of development where they get to keep what they have but all the poor people can catch up. Or, they get to keep doing what they've been doing, but through the magic of technology they are going to cause less damage to the environment and use fewer resources.[213]

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[207] G. Hardin, 'Lifeboat Ethics: the Case Against Helping the Poor' (Sept. 1974) *Psychology Today.* Available at: http://www.garretthardinsociety.org/articles/art_lifeboat_ethics_case_against_helping_poor.html

[208] C.S. Holling, 'Resilience And Stability of Ecological Systems' (1973), 4 *Annual Review of Ecology & Systematics,* pp. 1-23, at 14 (defining resilience as "a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables").

[209] *See* J. Fiksel, 'Sustainability and Resilience: Toward a Systems Approach' (2006), 2 *Sustainability: Science, Practice, & Policy*, pp. 14-21 at 16. Available at http://sspp.proquest.com/static_content/vol2iss2/0608-028.fiksel.pdf (defining resilience as "the capacity of a system to tolerate disturbances while retaining its structure and function"). *See also* E. J. Yanarella & R. S. Levine, 'From Sustainability to Resilience: Advance or Retreat?', n. 179 above, at p. 199 (providing a typology of resilience in different contexts).

[210] National Research Council, *Reducing Coastal Risk on the East and Gulf Coasts* (The National Academies Press, 2014), p. 19; National Research Council, *Disaster Resilience: A National Imperative* (The National Academies Press, 2012), p. 1. The National Research Council is part of the National Academy of Sciences. *See also* J. Fiksel, n. 209 above, p. 16 (defining resilience as "the capacity of a system to tolerate disturbances while retaining its structure and function").

[211] D. H. Meadows, D. L. Meadows, J. Randers, & W. Behrens, *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind* (Universe Books, 1972).

[212] M. Gambino, 'Is It Too Late for Sustainable Development?' Smithsonian.com (March 15, 2012). Available at: http://www.smithsonianmag.com/science-nature/is-it-too-late-for-sustainable-development-125411410/?all.

[212] Ibid.

[213] Ibid.

As Meadows sees it, it is too late for sustainable development: "Either way you use the term, it [sustainable development] is just a fantasy. Neither of those is possible—anymore. It probably was possible back in the '70s, but not now. We're at 150 percent of the global carrying capacity."[214] The chaotic economic downturns accompanying the collapse of the dot-com and housing bubbles made it clear to him "that we just haven't got a chance of dealing with these issues in any kind of orderly way." *The Limits to Growth*, he explains, was about a much bigger bubble— "a bubble in population and in material and energy consumption."[215] Because we also are not likely to deal effectively with the collapse of that bubble, long-term resilience is necessary.[216] A similar sentiment has been voiced by environmental writer Bill McKibben, leader of 350.org, a worldwide grassroots organization dedicated to fighting climate change, who now speaks about "surviving not thriving."[217]

Robin Kundis Craig and Melinda Harm Benson also argue that sustainability should be replaced by resilience.[218] Their understanding of sustainability is grounded in assumptions of ecological "stationarity." As "a matter of basic linguistic definition, sustainability is about human efforts to maintain continuity and keeping things—natural resources—in the same state of being as when management started or with reference to this baseline."[219] In addition, they say, "sustainability assumes that baseline environmental conditions—temperature, precipitation, soil moisture, species mix, and so forth—will remain more or less the same, within natural variability envelopes, over long periods of time."[220]

This approach, they say, is an "increasingly futile goal" in the face of climate change, adding that "climate change significantly undermines sustainability as a governance paradigm."[221] According to Craig and Benson, "climate change is creating a world of non-stationarity—a world where baseline conditions in the natural world can no longer be assumed."[222] A better course, they say, is based on the "concept of resilience and the theory of resilience thinking," which "offers a new and potentially more productive orientation than sustainability to the environmental challenges ahead."[223] They explain: "[R]esilience thinking assumes that systems are continually responding and adapting to continual change, with the ever present possibility that the changes will cross a threshold and induce an abrupt regime shift in the system."[224] What is needed, they say, is "a new governance structure that thoroughly incorporates resilience thinking. The design must address the need for adaptive capacity and administrative flexibility while also providing the necessary strong and enforceable frameworks that will be sufficiently supportive of the [socio-ecological] system states that we seek to foster and protect."[225]

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[214] Ibid.
[215] Ibid.
[216] Ibid.
[217] B. McKibben, *Eaarth: Making a Life on a Tough New Planet* (Times Books, 2010), p. 133.
[218] R. Craig & M. Benson, "Replacing Sustainability' (2013) 46(4) *Akron Law Review*, pp. 841-880.
[219] Ibid. at p. 847.
[220] Ibid. at p. 848.
[221] Ibid. at p. 855.
[222] Ibid. at p. 858.
[223] Ibid. at p. 862.
[224] Ibid. at p. 866.
[225] Ibid. at p. 875.

There is no question that resilience needs greater attention, particularly because of ongoing and projected future climate change. Greenhouse gases in the atmosphere are now higher than they have been in at least 800,000 years.[226] Even if we stopped emitting carbon dioxide and other greenhouse gases now, carbon dioxide already in the atmosphere would stay there for hundreds or thousands of years, unless we find a way to remove it.[227] There is also no question that climate disruption and resilience loom larger now than they did in 1992. In fact, the central contribution of Craig and Benson is to make clear how seriously climate change needs to be taken. The prospect of rapid, nonlinear, disruptive climate change is quite real.

But resilience is not an adequate replacement for sustainability. The historically grounded understanding of sustainability described in Part 2, which is based on integrated decision making, is not the version of sustainability these critics are attacking. Put differently, they are challenging versions of sustainability that have developed since the 1992 Earth Summit. Meadows correctly states that many people see sustainability as about keeping what developed countries already have while developing countries catch up, and based on enormous technological optimism, but that is not the understanding of sustainable development articulated at the Earth Summit.

Similarly, there is no warrant in the history of sustainable development for the Craig and Benson "linguistic" definition of the term as sustaining existing environmental conditions. Their understanding frames sustainability as an environmental goal, not a decision-making framework, which is contrary to the history of the term. Moreover, they assert that sustainable development is based on only a single goal—keeping environmental conditions in some baseline or steady state condition—which contradicts the fact that the sustainable development texts endorse a wide variety of different environmental goals, not to mention social and economic development. Finally, there is little evidence in the core sustainability texts of any desire to maintain environmental conditions in their current state. To the contrary, the Climate Change Convention, which was opened for signature at the Earth Summit, specifically anticipates the need for adaptation. The goal of the parties to the Convention is to prevent global temperatures from increasing beyond 1.5 to 2.0 degrees Centigrade, rather than returning global temperatures to preindustrial levels. The history of biodiversity protection under the Biodiversity Convention has to a very large degree been about slowing down the rate of biodiversity loss. Given the enormous environmental losses experienced all over the world in 1992 and today, it was and is unthinkable to endorse a position based on keeping the environment in a current condition.

While it is necessary to give greater emphasis to resilience, it is not appropriate to abandon sustainability. It is much more beneficial to treat both sustainability and resilience as necessary, consistent, and mutually reinforcing.[228] Indeed, sustainability agreements that emerged at the 1992

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[226] T. Stoker et al., (eds.), Intergovernmental Panel on Climate Change, 'Summary for Policymakers', *in Climate Change 2013: The Physical Science Basis* (Cambridge University Press 2013), p. 11.

[227] Ibid. at 28.

[228] *See* L. Peterson *et al.* (eds.) *Resilient Sustainable Cities: A Future* (Routledge, 2014) (explaining ways that cities can and should plan for both sustainability and resilience); C. Redman, 'Should Sustainability and Resilience be Combined or Remain Distinct Pursuits?' (2014) 19(2) *Ecology & Society*, pp. 37-44 (explaining strengths of sustainable development and robustness); A. Hecht *et al.*, 'Working Toward a Sustainable Future' (2014), 10(2) *Sustainability: Science, Practice, & Policy*, pp. 65-70 (2014) (explaining how federal agencies should foster both sustainability and resilience); H. Jun & M. Conroy, 'Linking Resilience and Sustainability in Ohio Township Planning' (2014), 57 *Journal of Environmental Planning and Management*, pp. 904-919 (using case study of 46

Earth Summit explicitly include climate change adaptation and resilience as part of sustainability. The inclusion of resilience in the sustainability framework is consistent with the overall integrated decision-making approach on which sustainability is based. That framework encourages decision makers to determine what particular environmentally-related goals—including but not limited to resilience—are most appropriate for their situation. Sustainable development is also preferable to resilience because it is broader, normative, and more hopeful.

In many cases sustainability requires resilience. To offer a comparison, the Endangered Species Act in the United States requires actions to further both the "survival" and "recovery" of protected species.[229] Although there are obvious differences between the two ideas, over 45 years, scientists have generally discovered that there is little difference between those two concepts in application. Providing for survival necessarily includes providing for foreseeable change in species habitats and the stochastic events which are part of life on the planet even in the absence of climate change.[230] Similarly, climate change adaptation, which is built into the Climate Change Convention, necessarily includes resilience. In fact, resilience only works to any significant degree if it is integrated in a widespread way into public and private decision making—the core feature of sustainable development.

Yet resilience is not the only relevant environmental goal. Resilience, by itself, does nothing to reduce or remedy environmental problems. Resilience, instead, is about protecting people from the effects of these problems. This is particularly problematic for climate change, the signature resilience issue for Craig and Benson; resilience says nothing about reducing greenhouse gas emissions (or concentrations) in the atmosphere.

Moreover, key principles supporting sustainable development are not present in the concept of resilience. The precautionary approach would suggest that both sustainable development and resilience are needed; a resilience-only approach would limit our options, and therefore both the probability and severity of adverse outcomes. Resilience is also contrary to the polluter-pays principle because it does not address the sources or causes of pollution; it only addresses their effects, and says nothing about having the polluters pay for resilience efforts.

Although sustainable development emphasizes the importance of reducing poverty and increasing equity, resilience does not. It is simply about the ability of systems to withstand shocks; it provides no guidance about how that ability should be distributed through the population on an intergenerational or intragenerational basis. This is particularly problematic because climate

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township plans in Ohio to show that communities with comprehensive plans that promote sustainability also exhibit resilience); J. Anderies, C. Folke, B. Walker, & E. Ostrom, 'Aligning Key Concepts for Global Change Policy: Robustness, Resilience, and Sustainability' (2013), 18(2) *Ecology & Society*, pp. 8-21, at 11 (explaining how sustainability, resilience, and a third concept, robustness, need to be applied together); U. Pisano, *European Sustainable Development Network, Resilience and Sustainable Development: Theory of Resilience, Systems Thinking and Adaptive Governance* (ESDN Quarterly Rpt. 26, 2012), available at: http://www.sd-network.eu/quarterly%20reports/report%20files/pdf/2012-September-Resilience_and_Sustainable_Development.pdf (explaining how sustainable development and resilience are mutually reinforcing).

[229] 16 U.S.C. §§ 1536(a)(2) (prohibiting federal agencies from jeopardizing existence of endangered or threatened species or destroying or adversely modifying their habitat); 1538(a) (prohibiting a variety of activities that adversely affect endangered species); §1533(f) (generally requiring recovery plans "for the conservation and survival of endangered species and threatened species").

[230] F. Cheever, 'The Road to Recovery: A New Way of Thinking About the Endangered Species Act' (1996), 23(1) *Ecology Law Quarterly,* pp. 1-78, at 13-14.

change from increasing greenhouse gas emissions—which resilience does not address—is likely to increase global poverty.[231] If society puts its resources into resilience rather than sustainability, it is likely that only the rich or well-off will be protected.

While public information, public participation, and access to justice are essential to sustainable development—all underpinnings of democratic governance—there is none of this in the concept of resilience, even though these are absolutely essential to address the challenges presented by climate disruption. Professor David Orr points out that coming catastrophes will test our system of governance; only through preserving an effective participatory government, accountable to the people, are we likely to survive with the basic principles of our civilization intact.[232]

To a significant degree, these differences in scope and breadth exist because sustainable development is a normative term directed at improving human freedom, opportunity, and quality of life. Resilience, by contrast, is a descriptive term applicable to a broad range of human and non-human systems. Meadows recognizes that resilience is needed to meet human needs, but it is difficult to see how resilience by itself would help accomplish these goals of sustainable development. As the late Elinor Ostrom and her colleagues observed: "resilience is a system-level concept and is distinct from sustainability in that it is not normative, i.e., it does not include specific choices about performance measures: We seldom hear of sustainable dictatorships, but there are resilient dictatorships."[233]

The narrowness of resilience can be illustrated by an analogy to the Cold War. The United States and the Soviet Union had thousands of nuclear missiles pointed at each other, and tens of millions of people would likely have died in the first hour alone if there had been a nuclear war. To prevent catastrophe, both nations took two approaches—preventing the use of these missiles through a variety of diplomatic and political means (including the economic and social development efforts discussed above)[234] , and civil defense (particularly the construction of bomb shelters). The Federal Emergency Management Agency, with roots in the Cold War, still espouses a broad mission to protect American citizens and first responders from "all hazards."[235] If we had just employed a resilience approach during that period, we would have only built bomb shelters, and, as a result, would have been more likely to need them.

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[231] *See, e.g.*, World Bank, *Turn Down the Heat: Why a 4 ° C Warmer World Must be Avoided: A Report for the World Bank by the Potsdam Institute for Climate Impact Research and Climate Analytics* (World Bank, 2012).

[232] D. Orr, 'Governance in the Long Emergency'*,* in E. Assadourian (ed.) *State of the World 2013: Is Sustainability Still Possible*? (Island Press, 2013), p. 279-290.

[233] J. Anderies *et al*., n. 228 above, at p. 11. It can be argued that resilience would be easier to accomplish if environmental problems and poverty are addressed, and if the principles that support sustainable development also guide resilience decisions. For example, the poor would be better off if they lived in more resilient housing and were able to plant more heat-resilient crops. But turning resilience into a normative principle guided by the same principles and goals as sustainable development simply turns a conversation about the proper role of resilience into a question about which label (sustainable development or resilience) one prefers for the same set of ideas. We don't need to redefine resilience to accomplish that result; we can simply apply sustainable development in a manner that includes resilience goals.

[234] See text accompanying notes 54-60.

[235] Homeland Security National Preparedness Task Force*,* 'Civil Defense and Homeland Security: A Short History of National Preparedness Efforts' (2006). Available at:
https://training.fema.gov/EMIWeb/edu/docs/DHS%20Civil%20Defense-HS%20-%20Short%20History.pdf.

The analogy to bomb shelters also points to the limitations of resilience as an alternative approach. During the Cold War, a recurring question was whether these shelters would even protect their occupants, given the enormous destructive power of nuclear weapons. Similarly here, it is difficult to specify the minimum conditions of resilience, given the wide range of potential futures that climate change and other environmental problems could bring.[236] This is particularly true for climate change; an unstable climate will keep changing over time, seriously impeding any efforts at resilience.

The analogy to the Cold War also suggests a deeper point about sustainable development. In the face of seemingly intractable environmental and poverty problems, sustainable development offers people a message of both hope and constructive engagement. In the face of those same problems, by contrast, resilience suggests a gritty message about survival and even the pointlessness of trying to reduce or eliminate these problems:

> [R]esilience tacitly suggests that we have acknowledged that survival at the level that we have come to expect and enjoy is no longer possible. Instead, we are resigned to circle the wagons and look for means and methods to survive as best we can for as long as we can. Once we have entered this mind-set, even if it is only through our use of language, sustainability/survival is no longer where we are headed or what we are trying to accomplish. We have created the self-fulfilling prophesy of a path to decline with unknown and unknowable consequences. We have changed the compact that constitutes the values of our civilization.[237]

In 1974, in *Lifeboat Ethics: the Case Against Helping the Poor*, celebrated thinker Garrett Hardin offered a troubling thought experiment to counter the then prevalent metaphor of "Spaceship Earth". He asked us to imagine a lifeboat holding 50 people with a capacity of 60. In addition, he asked us to imagine another 100 people swimming in the water trying to get into the boat in order to survive. The crisis at hand was the crisis of overpopulation and limited food supply. Hardin suggested that the populations of developed countries with adequate food supplies had reason to deny assistance to the less fortunate.

> We are all the descendants of thieves, and the world's resources are inequitably distributed. But we must begin the journey to tomorrow from the point where we are today. We cannot remake the past. We cannot safely divide the wealth equitably among all peoples so long as people reproduce at different rates. To do so would guarantee that our grandchildren and everyone else's grandchildren, would have only a ruined world to inhabit.

Hardin's logic applies with equal force to a world facing climate change. Developed countries have the power to adapt and survive, at least in the short term. Many less-developed countries do not. Hardin endeavored to blame the crisis of the 1970s on undeveloped countries

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[236] Yanarella & Levine, n. 179 above, at p. 198.
[237] Ibid. at p. 204.

based on their high birth rates. Climate change is more plainly the responsibility of developed countries with their long histories of carbon emissions. We did not choose a lifeboat solution to the problems in the 1970s. We should not choose a lifeboat solution to our current issues.

The quest for sustainability may fail. We may be overwhelmed by rapid, nonlinear climate change, But we may also succeed, particularly if we accelerate the transition to sustainability. That prospect provides a necessary measure of the hope necessary to motivate action; resilience does not provide much hope. If we focus on resilience alone, we may not even get that.

4. CONCLUSION

In *Civilization and its Discontents*, written between two catastrophic world wars, Freud expressed persuasively the urgency of changing our ways of thinking if we are to avoid annihilation: "And now, it seems to me, the meaning of the evolution of culture is no longer a riddle to us. It must present to us the struggle between Eros and death, between the instincts of life and the instincts of destruction, as it works itself out in the human species."[238] This same struggle—between the instincts of life and the instincts of destruction—is occurring between conventional development and sustainable development. One puts civilization at serious risk from widespread environmental degradation and extreme poverty, and one offers the possibility of maintaining and even enhancing human quality of life in harmony with nature.

The policy space created by the concept of sustainable development is being filled by a wide variety of laws, policies, and activities that further social and economic goals while protecting the environment. The understanding of sustainability underlying these laws and activities is the shared creation of millions of practitioners all over the world. Their constant and repeated interactions and experiences refine and improve both understanding and outcomes. While there is every expectation that each community will work out the specific meaning of sustainability based on its own history, natural resources, economic situation and other conditions, the overall decision-making framework is nonetheless remarkably similar in all countries, corporations and nongovernmental organizations. It is neither realistic nor appropriate to ignore this shared practice and understanding. This understanding of sustainability is not one of many trains that are parked in the station waiting for passengers; the train left the station more than two decades ago.

The task ahead is to craft, adopt, and implement new and modified laws, products and services, and other practices that are not only sensible and ambitious but are also so attractive that they will overcome all the many obstacles to change, including not only opposition but also simple inertia. To accelerate the transition to sustainability, it will be necessary to foster abundance and thriveability, to actually protect and restore the environment, and to be more resilient. All of these require the sustainable development decision-making framework, and none of them can adequately replace it.

No article, certainly not one as brief as this, can do justice to the enormous and ever-expanding literature of sustainable development in an enormous range of human fields of

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[238] S. Freud, *Civilization and Its Discontents* (W. W. Norton & Co., 2005) (first published 1930), p. 102.

endeavor. We know these are powerful concepts, and that they have facilitated change at many levels. We also know that they have been misapplied, intentionally and unintentionally. Both the beneficial effects and the misapplication of sustainable development prompted our effort here to foster a shared understanding of its meaning.

Although discussions of terminology can be fundamentally silly, there is no question that continued debate about the meaning of sustainable development, in the broad range of contexts in which it is applied, serves an important purpose. It is only by honestly considering the meaning of the phrases in every context that we can come to any real understanding of its general meaning. To a great degree, the real battles about the meaning of sustainable development and sustainability are fought in specific places and contexts. Under what circumstances can shale gas accelerate the transition to sustainability?[239] What is required to make sustainable forestry happen on widespread basis?[240] But sustainable development provides an essential normative framework setting out basic criteria for making those evaluations. It does not answer all questions, and there are frequently several reasonable answers to the same question. But starting in the right place makes better decisions and better laws more likely. Given the opportunities that sustainability provides, and the consequences of getting it wrong, we need to get it right.

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[239] J. Dernbach & J. May, *'Can Shale Gas Help Accelerate the Transition to Sustainability?', Environment: Science and Policy for Sustainable Development*, Jan.-Feb. 2015, at pp. 7-15.
[240] Cheever & Ward, n. 3 above.