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### Global Energy Poverty: The Relevance of Faith and Reason

Lakshman Guruswamy

*University of Colorado Law School*

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# ARTICLES

## GLOBAL ENERGY POVERTY: THE RELEVANCE OF FAITH AND REASON

LAKSHMAN GURUSWAMY\*

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\* Lakshman Guruswamy, Ph.D., Nicholas Doman Professor of Law, University of Colorado at Boulder. This article relies and reproduces parts of the author's previous works. I am indebted to Anabelle Chaffin (2L) for her valuable editorial assistance.

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## INTRODUCTION

The challenge of energy poverty (EP) primarily confronts the least developed countries (LDCs) of the world, located in Africa and Asia, but is also prevalent within segments of more advanced developing countries in Asia. This article will first delineate the nature of global energy poverty that results in the premature deaths of millions of people and leads to pervasive sickness among many more millions.<sup>1</sup> The article will next sketch the legal and political responses to this problem that have generally applied principles of sustainable development (SD) and the seventeen Sustainable Development Goals (SDGs) of 2015 adopted by the General Assembly of the UN.<sup>2</sup> The final part of this article will examine the largely ignored conceptual roots of SD-based in justice. It will be argued that the global jurisprudential lineages of justice are intertwined with common strands of faith and reason, traversing the variegated cultural and religious traditions of the world.

### I. ENERGY POVERTY<sup>3</sup>

The phenomenon of energy poverty, while found among the poorest people in the world, more profoundly and disproportionately affects women and children. Principles of law and justice—that provide the jurisprudential foundations of SD—call on governments and civil society to address this phenomenon. This section first discusses the importance of energy to

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1. See discussion *infra* Part I.

2. See discussion *infra* Section III.G.

3. This section reproduces parts of the author's *Sustainable Development: Energy, Justice, and Women*, 36 WIS. INT'L L.J. 397, 408–17 (2019).

development. It then examines the specific dimensions of energy poverty and its inordinate impacts on women.

### A. The Importance of Energy

The presence and impact of energy in the human and social world is ubiquitous.<sup>4</sup> Energy is a fundamental human need and a driving determinant of human progress.<sup>5</sup> Humans must constantly engage in energy conversions—processes that transform one form of energy into another more useful form.<sup>6</sup> Moreover, as noted below, the inability to access energy can both cause and perpetuate poverty.

A rich seam of writers and thinkers considered below, spanning the life sciences, mathematics, sociology, anthropology, engineering, and philosophy, have examined the central role played by energy in the development of society. They have shown how humans are endlessly engaged in transforming or converting energy found in the environment into energy useful for human purposes. Such energy can be classified as either endosomatic or exosomatic. Transforming food energy into muscular power is endosomatic (or metabolic) energy. Transforming energy outside the human body into useful energy is exosomatic energy. Exosomatic energy is an essential element of societal development.<sup>7</sup> These writers and thinkers have further illustrated how societies have used energy and have elucidated the interface between the physical or natural phenomena of exosomatic energy and how technology was used to convert natural resources to energy. They have also tracked the impact of energy on human social systems.

Herbert Spencer (1820–1903) was the first to articulate that a society’s ability to harness energy defines what it can produce and that the ability to control and use energy is the basis of both social progress and disparities among societies.<sup>8</sup> According to Spencer, “human progress is measured by the degree to which simple acquisition is replaced by production; achieved first by manual power, then by animal-power, and finally by machine-power.”<sup>9</sup> Even though he did not pursue the full implications of using resources such as fossil fuels as energy, his thesis that

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4. Eugene A. Rosa et al., *Energy and Society*, 14 ANN. REV. SOC. 149 (1988) (construed in LAKSHMAN GURUSWAMY, GLOBAL ENERGY JUSTICE: LAW AND POLICY 10–16 (2017)).

5. LESLIE A. WHITE, THE EVOLUTION OF CULTURE: THE DEVELOPMENT OF CIVILIZATION TO THE FALL OF ROME 33–57 (1959).

6. TEACH ENGINEERING, *Energy Forms, States and Conversions*, [https://www.teachengineering.org/lessons/view/cla\\_lesson4\\_forms\\_states\\_conversions](https://www.teachengineering.org/lessons/view/cla_lesson4_forms_states_conversions) [<https://perma.cc/M3AY-5W7F>].

7. MARIO GIAMPIETRO ET AL., ENERGY ANALYSIS FOR A SUSTAINABLE FUTURE 27 (1st ed. 2013).

8. 3 HERBERT SPENCER, THE PRINCIPLES OF SOCIOLOGY 356 (New York, D. Appleton & Co. 1898).

9. *Id.*

energy was a central component of social organization set the stage for a deeper understanding of the role of energy in society.<sup>10</sup>

In the 1950s, the anthropologist Leslie White refined Spencer's ideas by conceptualizing cultural evolution as movement along a continuum, where progress is defined in terms of a linear path from "poor" to "advanced" energy use.<sup>11</sup> White posited that societies' ability to exploit new, better forms of energy drives development and that access to energy dictates the progress of peoples: "culture advances as the amount of energy harnessed per capita per year increases, or as the efficiency . . . of the means of controlling energy is increased . . . ."<sup>12</sup> He concluded there was little cultural growth until the nineteenth century and the discovery of fossil fuels, and he argued that the invention of fuel-powered engines inaugurated a new era in cultural history<sup>13</sup> by tremendously increasing the amount of energy under man's control and at his disposal for culture-building.<sup>14</sup> Further, White believed that energy is inextricably linked with development based on who has access to energy and control over its production.<sup>15</sup>

The sociologist Fred Cottrell further developed and built upon the theories of Spencer and White by considering energy as a limiting factor. According to him, the ability (or inability) to harness energy equates to human capacity for growth.<sup>16</sup> But unlike White, he recognized that the natural world places a limit, articulated in the second law of thermodynamics, on the amount of energy that can ultimately be harnessed for human use.<sup>17</sup>

More recently, the economists Nicholas Georgescu-Roegen and Herman Daly advanced this theme and challenged economic orthodoxy by emphasizing that the second law of thermodynamics dictates limits to economic growth.<sup>18</sup> The physicist Amory Lovins has suggested that this

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10. Andrew M. McKinnon, *Energy and Society: Herbert Spencer's Energetic Sociology of Social Evolution and Beyond*, 10 J. CLASSICAL SOC. 439, 439–40 (2010).

11. WHITE, *supra* note 5, at 33–57.

12. *Id.* at 56.

13. Leslie White, *Energy and the Evolution of Culture*, 45 AM. ANTHROPOLOGIST, 335, 345 (1943).

14. *Id.* at 347.

15. *Id.* at 354.

16. FRED COTTRELL, *ENERGY AND SOCIETY: THE RELATION BETWEEN ENERGY, SOCIAL CHANGE, AND ECONOMIC DEVELOPMENT* 6 (AuthorHouse rev. ed. 2009).

17. Rosa et al., *supra* note 4, at 153. Thermodynamics is the study of energy. The first law describes how energy or matter cannot be created or destroyed, but is merely transformed from one kind to another. The second law, however, defines the limits of such transformation. It is sometimes called the law of entropy because it states in essence that energy, once used, moves from the useful to the useless category. For example, energy once used to carry out a useful task like powering an engine is transformed in doing so into useless waste matter that cannot be re-used as energy. Alok Jha, *What Is the Second Law of Thermodynamics?*, THE GUARDIAN (Dec. 1, 2013, 3:00 AM), <https://www.theguardian.com/science/2013/dec/01/what-is-the-second-law-of-thermodynamics> [<https://perma.cc/SXV4-ESZT>].

18. HERMAN E. DALY, *BEYOND GROWTH: THE ECONOMICS OF SUSTAINABLE DEVELOPMENT* 29–30 (1997); NICHOLAS GEORGESCU-ROEGEN, *THE ENTROPY LAW AND THE ECONOMIC PROCESS* 3, 5–6 (iUniverse 1999).

necessitates shifting to a “soft energy path” emphasizing energy efficiency and renewable energy resources.<sup>19</sup> Moreover, modern empirical studies have demonstrated that the relationship between energy consumption and wellbeing is not, as White postulated, entirely linear.<sup>20</sup> Rather, “while a threshold level of high energy consumption is probably necessary for a society to achieve industrialization and modernity, once achieved, there is wide latitude in the amount of energy needed to sustain a high standard of living.”<sup>21</sup>

Applying these insights within the modern milieu reveals that access to energy is essential to development and that the inability to access energy can both cause and perpetuate poverty. This occurs where those without access to modern forms of energy are forced to rely on the inefficient conversion of biomass and human muscle power to complete the daily tasks necessary for their wellbeing.

### **B. Energy Poverty and its Inordinate Impacts on Women<sup>22</sup>**

A general lack of access to beneficial energy plays an enormous role in both creating and promulgating the condition of the Least Developed Countries (“LDCs”), perpetuating the phenomenon of energy poverty. Globally, between one to three billion people (the “Other Third” or “Energy Poor”) have little or no access to beneficial energy to meet their basic needs.<sup>23</sup> More than ninety-five percent of the Energy Poor (EP) live either in sub-Saharan Africa or developing Asia, eighty-four percent in predominantly rural areas.<sup>24</sup> The burdens arising from absence of energy falls mostly on women. The following part explores four major areas—cooking, lighting, drinking water and sanitation, and motive or mechanical power—in which energy poverty impacts the EP generally, and women specifically.

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19. Rosa et al., *supra* note 4, at 153 (citing A.B. LOVINS, *SOFT ENERGY PATHS: TOWARD A DURABLE PEACE* (1977)).

20. *Id.*

21. *Id.* at 159.

22. Most of this section is taken from Lakshman Guruswamy, *Energy Poverty*, 36 ANN. REV. ENV'T & RES. 139, 140, 147–152 (2011).

23. *Sustainable Development Goals: Goal 7 Affordable and Clean Energy*, UNITED NATIONS, <https://www.un.org/sustainabledevelopment/energy/> [https://perma.cc/QEW6-8UH].

24. RANGAN BANERJEE ET AL., *GLOBAL ENERGY ASSESSMENT: TOWARD A SUSTAINABLE FUTURE* 153–156, 166 (John F. Ahearn et al. eds, 2012), available at [www.iiasa.ac.at/web/home/research/Flagship-Projects/Global-Energy-Assessment/GEA\\_Chapter2\\_development\\_hires.pdf](http://www.iiasa.ac.at/web/home/research/Flagship-Projects/Global-Energy-Assessment/GEA_Chapter2_development_hires.pdf) [https://perma.cc/9UGR-TMGW].

## II. MANIFESTATIONS OF ENERGY POVERTY

### A. Cooking

#### 1. *General Effects of Cooking with Biomass on the EP*

A large swath of humanity, specifically 715 million people in the LDCs, is caught in a time warp, relying on biomass-generated fire as their principal source of energy.<sup>25</sup> These fires are made by burning animal dung, waste, crop residues, rotted wood, other forms of harmful biomass, or raw coal.<sup>26</sup> The lack of access to modern fuels and overwhelming reliance on biomass for cooking is greatly inefficient and results in adverse human health consequences.

The EP who rely on biomass for their fuel generally cook over an open fire or with some form of a traditional stove. This process is exceedingly inefficient, as only about eighteen percent of the energy from the fire transfers to the pot,<sup>27</sup> and indoor air pollution can contain a variety of dangerous pollutants, such as carbon monoxide, nitrous oxides, sulfur oxides, formaldehyde, carcinogens (such as benzene), and small particulate matter.<sup>28</sup> According to the World Health Organization, exposure to high concentrations of indoor air pollution presents one of the most important threats to public health worldwide, resulting in diseases such as pneumonia, chronic pulmonary disease, lung cancer, asthma, and acute respiratory infections.<sup>29</sup>

#### 2. *Effects of Cooking with Biomass on Women Among the EP*

Energy poverty as it relates to energy access for cooking disproportionately affects women due to health risk exposure and time spent collecting fuel and cooking. Using biomass for cooking results in 3.5 million premature deaths per year (mortality) and the illness of many millions more (morbidity).<sup>30</sup> This mortality and morbidity primarily affects women and children. Women are disproportionately affected by the use of biomass for

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25. Gwénaëlle Legros et al., *THE ENERGY ACCESS SITUATION IN DEVELOPING COUNTRIES*, WORLD HEALTH ORGANIZATION [WHO] & UNITED NATIONS DEVELOPMENT PROGRAMME [UNDP] 16 (2009), <https://www.undp.org/content/dam/undp/library/Environment%20and%20Energy/Sustainable%20Energy/energy-access-situation-in-developing-countries.pdf> [https://perma.cc/288B-XBTL].

26. *Id.* at 6.

27. HUGH WARWICK & ALISON DOIG, *SMOKE—THE KILLER IN THE KITCHEN* 8 (2004).

28. WORLD HEALTH ORG., *FUEL FOR LIFE: HOUSEHOLD ENERGY AND HEALTH* 8 (2006).

29. *Indoor Air Pollution Takes a Heavy Toll on Health*, WORLD HEALTH ORG., (Apr. 30, 2017) <https://www.who.int/mediacentre/news/notes/2007/np20/en/> [https://perma.cc/5NLY-F2AW].

30. *IEA: Biomass Fuels Linked to 3.5 Million Deaths Annually*, BIOENERGY INSIGHT (July 18, 2016), [https://www.bioenergy-news.com/display\\_news/10771/iea\\_biomass\\_fuels\\_linked\\_to\\_35\\_million\\_deaths\\_annually/](https://www.bioenergy-news.com/display_news/10771/iea_biomass_fuels_linked_to_35_million_deaths_annually/) [https://perma.cc/9RSX-U5KT].

cooking because women are traditionally responsible for cooking and childcare in the home, and they spend more time inhaling the polluted air that is trapped indoors.<sup>31</sup> Thus, women and children have the highest exposure to indoor air pollution and suffer more than anyone from these negative health effects.<sup>32</sup> Specifically, women are about twice as likely to be afflicted with chronic pulmonary disease than men in homes using solid fuels.<sup>33</sup> In Africa, where around 730 million people rely on bio-mass for cooking, women and girls are mainly responsible for procuring and using cooking fuels.<sup>34</sup>

In conflict zones, the search for cooking fuels exposes women and girls to physical and sexual violence.<sup>35</sup> For example, in the refugee camps of Darfur, the work of women venturing to collect fuel presents increased risks of being raped.<sup>36</sup> This is equally the case in other refugee camps, such as those in Somalia.<sup>37</sup>

Additionally, lack of access to cooking fuel forces women and children to spend many hours gathering fuel or spend significant household income purchasing fuel. Women provide ninety-one percent of households' total efforts in collecting fuel and water in the LDCs, and women have an average working day of eleven to fourteen hours compared to ten hours on average for men.<sup>38</sup> A reduction in time spent collecting fuel and cooking enables women to spend more time with their children, tend to other responsibilities, enhance existing economic opportunities, pursue income-generating, educational, and leisure activities, as well as rest—all of which contribute to poverty alleviation.

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31. WARWICK & DOIG, *supra* note 27, at vi.

32. *Clean Cookstoves Can Save Lives and Empower Women*, GLOB. ALL. FOR CLEAN COOKSTOVES, <http://cleancookingalliance.org/binary-data/RESOURCE/file/000/000/278-1.pdf> [<https://perma.cc/6SN8-PEC7>].

33. Legros et al., *supra* note 25, at 22.

34. Sohna Aminatta Ngum, *Empowering Women and Girls in the Quest for Universal Energy Access for All*, AFR. DEV. BANK (Apr. 25, 2016), <https://www.afdb.org/en/blogs/investing-in-gender-equality-for-africa%E2%80%99s-transformation/post/empowering-women-and-girls-in-the-quest-for-universal-energy-access-for-all-15625/> [<https://perma.cc/Y4WE-SRTT>].

35. *Id.*

36. *Cookstoves: Our Story*, BERKELEY LAB, <http://cookstoves.lbl.gov> [<https://perma.cc/SRU2-296A>].

37. Lisa Shannon, *The Rape of Somalia's Women is Being Ignored*, THE GUARDIAN, (Oct. 12, 2011, 11:15 AM), <https://www.theguardian.com/commentisfree/2011/oct/11/rape-somalia-women-famine> [<https://perma.cc/U3NA-UWYR>].

38. *Women and Gender*, CLEAN COOKING ALL, <http://cleancookstoves.org/impact-areas/women-gender/index.html> [<https://perma.cc/5N6H-9TLG>].



## B. Lighting

### 1. General Lighting-Related Effects on the EP

The EP also lack access to modern energy solutions for lighting. Lighting is essential to human progress, and without it, humans would be comparatively inactive for about half of their lifetimes.<sup>39</sup> This lack of access to modern energy solutions for lighting hinders productivity, causes health and physical hazards, and produces tremendous financial waste.

Many LDCs have extremely hot climates and depend on agriculture for food. Unfortunately, the heat of the day hinders working during sunlight hours and severely reduces agricultural productivity, while the absence of artificial light impedes working at night. Moreover, the lack of lighting creates physical insecurity when venturing out in the darkness and almost entirely prevents commercial activity after dark.<sup>40</sup>

Almost 500 million of the EP rely on kerosene for illumination,<sup>41</sup> which has several associated risks. The hazards of kerosene, such as fires, explosions, and poisonings resulting from children ingesting it, are extensively documented.<sup>42</sup> There is evidence implicating kerosene in ailments including the impairment of lung function, asthma, cancer, and tuberculosis.<sup>43</sup> The use of kerosene and candles is also costly. Households often spend ten to twenty-five percent of their income on kerosene.<sup>44</sup> Over \$36 billion is spent on kerosene annually, \$10 billion of which is spent in sub-Saharan Africa.<sup>45</sup>

### 2. Lighting-Related Effects on Women Among the EP

The lack of lighting has particularly adverse impacts on women and children. The lack of lighting at home leads to an inability to undertake homework or studies.<sup>46</sup> As a result, women undertaking unpaid domestic labor as wives or women in the home are unable to break out of their predicament by educating themselves at night with a view to obtaining paid

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39. M. LUCKIESH, *ARTIFICIAL LIGHT: ITS INFLUENCE UPON CIVILIZATION* 8 (The Century Co. 1920).

40. See generally Jennifer Doleac & Nicholas J. Sanders, *Under the Cover of Darkness: How Ambient Light Influences Criminal Activity*, 97 *REV. ECON. & STAT.* 1093 (2015).

41. Nicholas L. Lam, et al., *Kerosene: A Review of Household Uses and Their Hazards in Low and Middle Income Countries*, 15 *J. OF TOXICOLOGY & ENVTL. HEALTH* 396, 396 (2012).

42. *Id.* at 423.

43. *Id.* at 399–401, 412–23.

44. *Lighting the Way*, *THE ECONOMIST*, Sept. 1, 2012, at 14–16.

45. *Id.*

46. This sub-section relies on Lakshman Guruswamy, *Introduction to Model Laws on Lighting*, 44 *DENVER J. INT'L L. & POL'Y* 323, 324 (2016).

jobs or becoming entrepreneurs.<sup>47</sup> The absence of street lighting leads to molestation and rape of women and prevents them from venturing outside their homes.<sup>48</sup> Moreover, the expense of paying for kerosene might prevent them from purchasing food or other household necessities.<sup>49</sup> Finally, due to the disproportionate time spent indoors by women, they are often more prone to accidents caused by kerosene lamps.<sup>50</sup>

### C. Drinking Water and Sanitation

#### 1. General Effects of Energy Poverty on Drinking Water and Sanitation Access

Lack of access to clean drinking water and sanitation are two interconnected, deadly issues facing the EP. Worldwide, approximately one in eight people—884 million in total—lack access to safe water supplies.<sup>51</sup> In preventing diseases such as diarrhea, tuberculosis, cholera, and other waterborne diseases, basic sanitation is just as important as fresh drinking water.<sup>52</sup> Billions lack access to improved sanitation, including 1.2 billion people who have no facilities at all.<sup>53</sup> As a result, 3.4 million people die from water-related diseases each year.<sup>54</sup> As with many other issues faced by the EP, children are intensely affected by lack of access to clean drinking water and sanitation facilities. Nearly one in five child deaths—about 1.5 million each year—is due to diarrhea, which is often caused by unclean drinking water and inadequate sanitation facilities.<sup>55</sup> Other consequences of the lack of clean drinking water and basic sanitation include crop failure in irrigated fields, livestock death, and environmental damage.<sup>56</sup> Energy is necessary to alleviate these problems through collecting, transporting, and distributing

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47. *See id.* at 324–25.

48. *See id.*

49. *See id.* at 325.

50. *Id.*

51. PROGRESS ON DRINKING WATER AND SANITATION: SPECIAL FOCUS ON SANITATION, WORLD HEALTH ORG. [WHO] & UNICEF 30 (2008), [https://www.who.int/water\\_sanitation\\_health/monitoring/jmp2008/en/](https://www.who.int/water_sanitation_health/monitoring/jmp2008/en/) [<https://perma.cc/4LX9-6LE6>].

52. *See generally Special Rapporteur on the Human Right to Safe Drinking Water and Sanitation*, UNITED NATIONS OFFICE OF THE HIGH COMM’R FOR HUMAN RIGHTS, <http://ohchr.org/EN/Issues/WaterAndSanitation/SRWater/Pages/SRWaterIndex.aspx> [<https://perma.cc/DS7U-MRYU>].

53. *Id.*

54. Magdalena Mis, *More Than 300 Million at Risk of Life-Threatening Diseases From Dirty Water*: UN, REUTERS (Aug. 30, 2016, 11:55 AM), <https://www.reuters.com/article/us-global-water-pollution/more-than-300-million-at-risk-of-life-threatening-diseases-from-dirty-water-u-n-idUSKCN115291> [<https://perma.cc/XT63-925D>].

55. Annette Prüss-Ustün et. al, SAFER WATER, BETTER HEALTH: COSTS, BENEFITS, AND SUSTAINABILITY OF INTERVENTIONS TO PROTECT AND PROMOTE HEALTH, WORLD HEALTH ORG. [WHO] 7 (2008), [https://www.who.int/quantifying\\_chimpacts/publications/saferwater/en/](https://www.who.int/quantifying_chimpacts/publications/saferwater/en/) [<https://perma.cc/5ZHX-3GK2>].

56. *See id.* at 22.

clean water, powering water treatment facilities, facilitating in-home water treatment (boiling, for example), and constructing and powering sanitation facilities.<sup>57</sup>

## 2. *The Effects of Unsafe Drinking Water and Sanitation on Women Among the EP*

In most societies, women have primary responsibility for management of household water supply, sanitation, and health.<sup>58</sup> Accordingly, they disproportionately experience the effects of insufficiently safe drinking water, by expending significant time collecting water. Moreover, the health, safety, educational, and professional effects of lack of access to basic sanitation caused by lack of access to water, falls inordinately on women.

Women and children among the EP have to walk many miles in the LDCs, such as the poorest parts of sub-Saharan Africa and semi-desert regions of Asia, to obtain water. Research in sub-Saharan Africa suggests that women and girls in low-income countries spend forty billion hours a year collecting water—the equivalent of a year's worth of labor by the entire work force in France.<sup>59</sup> In a study of twenty-five countries in sub-Saharan Africa, UNICEF estimated that women there spent sixteen million hours collecting water each day,<sup>60</sup> while a study in Kenya reported women spending an average of four and a half hours fetching water per week, causing seventy-seven percent to worry about their safety while fetching and preventing twenty-four percent from caring for their children.<sup>61</sup>

Most women without access to basic sanitation, such as a latrine, must wait for nightfall and an empty field to defecate in private, a practice which has serious side effects for many women. Waiting so long to defecate leads to increased chances for urinary tract infections, chronic constipation, and psychological stress.<sup>62</sup> Many women who go out alone at night are also at an increased risk of physical and sexual assault.<sup>63</sup> The symptoms of

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57. International Energy Agency, *Water for Energy: Is Energy Becoming a Thirstier Resource?* 4 (2012), <https://webstore.iea.org/world-energy-outlook-2012-2> [<https://perma.cc/C9DS-45N3>].

58. United Nations Dep't of Econ. & Social Affs., *Gender and Water*, UNITED NATIONS (Oct. 23, 2014), <http://un.org/waterforlifedecade/gender.shtml> [<https://perma.cc/L9C8-JYJJ>].

59. *Id.*

60. PROGRESS ON DRINKING WATER AND SANITATION: 2012 UPDATE, WORLD HEALTH ORG. [WHO] & UNICEF 31 (2012), <https://www.unicef.org/media/files/JMPReport2012.pdf> [<https://perma.cc/2XGM-E4DB>].

61. Bethany Caruso, *Women Still Carry Most of the World's Water*, QUARTZ, (July 24, 2017), <https://qz.com/1033799/women-still-carry-most-of-the-worlds-water/> [<https://perma.cc/BMY8-7GZ9>].

62. See United Nations, *supra* note 58.

63. INTER-AGENCY TASK FORCE ON GENDER AND WATER & INTERAGENCY NETWORK ON WOMEN AND GENDER EQUALITY, *GENDER, WATER AND SANITATION: A POLICY BRIEF 2*, 5

menstruation, pregnancy, and the postnatal period also become problematic if there are not adequate facilities to properly deal with them. Many girls are forced to leave school once they reach puberty and begin to menstruate simply because there are no facilities or supplies accessible to them.<sup>64</sup> Those who choose to stay often miss class during their menstrual cycle, making it harder for them to succeed in the classroom.<sup>65</sup> Furthermore, adult female professionals without access to nearby facilities must choose between the indignity and health risks of caring for themselves in the open or leaving work.<sup>66</sup>

#### D. Motive or Mechanical Power

The lack of access to sufficient motive or mechanical power is a widely overlooked issue in the pursuit of sustainable development. According to the UNDP, lack of access to mechanical power is not included in most policy debates across Africa. For example, while targets have been established by LDCs for access to modern cooking fuels and general access to electricity, not a single LDC has set a specific national target on access to motive power.<sup>67</sup> Furthermore, in a wide UN study, data pertaining to access to motive power was found only in three sub-Saharan countries within the short compass of 2000 to 2005, rendering it difficult to assess the scope and severity of this modern global problem.<sup>68</sup>

Access to mechanical energy or motive power is essential to satisfy three basic and sometime overlapping human needs: energy for carrying out household duties, energy for agriculture and subsistence, and energy for livelihood and income. First, motive power is needed to help women and children carry out household labor. Household activities span a number of tasks that include subsistence agriculture, carrying water and firewood as referred to in Part II.C (dealing with water and sanitation), food preparation (such as pounding grain to separate the grain from the husk and grinding the grain to facilitate cooking), cleaning the house, and washing clothes.

Equipment and appliances applying mechanical or motive power could relieve women and children of some of these onerous physical burdens of household labor. Such equipment includes treadle pumps,<sup>69</sup> which can

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(2006), <https://www.unwater.org/publications/gender-water-sanitation-policy-brief/> [<https://perma.cc/9QC2-NJMJ>].

64. *See id.* at 5.

65. *See id.*

66. *Id.*

67. SHONALI PACHAURI ET AL., INT'L INST. FOR APPLIED SYS. ANALYSIS, ACCESS TO MODERN ENERGY: ASSESSMENT AND OUTLOOK FOR DEVELOPING AND EMERGING REGIONS V, 10 (2012), [http://www.iiasa.ac.at/web/home/research/researchPrograms/Energy/IIASA-GEF-UNIDO\\_Access-to-Modern-Energy\\_2013-05-27.pdf](http://www.iiasa.ac.at/web/home/research/researchPrograms/Energy/IIASA-GEF-UNIDO_Access-to-Modern-Energy_2013-05-27.pdf) [<https://perma.cc/PKH8-4PQ6>].

68. Legros et al., *supra* note 25, at 7.

69. A treadle pump is a human-powered suction pump that sits on top of a well and is used for irrigation. It is designed to lift water from a depth of seven meters or less. The pumping is activated by stepping up and down on a treadle, which is a system of levers that

reduce or alleviate the labor and long hours involved in carrying water, washing clothes, and a variety of tasks dealing with agriculture.

Second, there is a need for motive power products in agriculture and subsistence. According to the International Labour Organization, the UN agency for the world of work,<sup>70</sup> agriculture represents over half of all employment in Africa, and informal employment represents seventy-two percent of non-agricultural employment in sub-Saharan Africa.<sup>71</sup> Energy use is vast in agriculture—from planting and transplanting, to weed control, to irrigation, to the final transport of the product. In sub-Saharan Africa, these processes are still powered primarily by human labor.<sup>72</sup> In the West African rice regions where floodplain cultivation was and is practiced, men reclaim swamp-land for cultivation and each cropping season overturn the clay soil and repair ditches and embankments; sowing, weeding, and transplanting are tasks generally performed by women.<sup>73</sup> While other indigenous African cereals like millet and sorghum are merely pounded, rice demands skilled labor to produce the rice grain. There are three main operations involved in rice milling: threshing, winnowing, and pounding.<sup>74</sup> A mechanical rice husker or huller could take the place of human labor in carrying out these labor-intensive functions.<sup>75</sup>

The preparation of cereals and tubers often demands even more time and labor than the act of cooking. For example, Manioc or Cassava is a major

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drives pistons, creating cylinder suction that draws groundwater to the surface. ALASTAIR ORR ET AL., *THE TREADLE PUMP: MANUAL IRRIGATION FOR SMALL FARMERS IN BANGLADESH* 9 (1991), available at [https://pdf.usaid.gov/pdf\\_docs/PNABX290.pdf](https://pdf.usaid.gov/pdf_docs/PNABX290.pdf) [<https://perma.cc/J3VE-YG7B>].

70. United Nations, *supra* note 58.

71. INT'L LABOR OFFICE, *WOMEN AND MEN IN THE INFORMAL ECONOMY: A STATISTICAL PICTURE* 27 (3d ed. 2018), [https://www.ilo.org/global/publications/books/WCMS\\_626831/lang--en/index.htm](https://www.ilo.org/global/publications/books/WCMS_626831/lang--en/index.htm) [<https://perma.cc/4ZHE-5PD5>].

72. Stephen Karekezi & Waeni Kithyoma, *Renewable Energy Strategies for Rural Africa: Is a PV-Led Renewable Energy Strategy the Right Approach for Providing Modern Energy to the Rural Poor of Sub-Saharan Africa?*, 30 *ENERGY POL'Y* 1071, 1077 (2002), <https://www.sciencedirect.com/science/article/pii/S0301421502000599> [<https://perma.cc/WYB5-HPPY>].

73. FRANCIS MOORE, *TRAVELS INTO THE INLAND PARTS OF AFRICA* 127 (1738).

74. Threshing involves separating the grains from the stalks after a short period of drying. This can be done by using a hand-held flailing-stick, animals for trampling, or machinery. Winnowing, which alternates with pounding, removes the empty husks and chaff. It is traditionally carried out by placing the rice in a flat basket and rotating the grains so that the lighter materials move to the edge, where they are jettisoned. The third operation of rice processing, pounding, is really misnamed, since the need to obtain whole grains, rather than broken, requires a tapping and rolling motion, in which loosening the grip on the pestle at the right moment before striking the rice minimizes grain breakage. "Pounding" actually involves two distinct steps: first, removing the grain's hard outer coat or hull (dehusking), and second, polishing or whitening the rice by separating the bran and the nutrient-bearing germ from the softer endosperm. FOOD & AGRIC. ORG. OF THE UNITED NATIONS, *POST-HARVESTING PROCESSING* 4, 6, <http://www.fao.org/3/a-au104e.pdf> [<https://perma.cc/53CX-LVQN>].

75. These machines are most widely developed and used throughout Asia. RANDOLPH BARKER ET AL., *THE RICE ECONOMY OF ASIA* 174-77 (1985).

staple food in the developing world, providing a basic diet for over half a billion people.<sup>76</sup> Manioc needs to be subjected to a complicated grating and soaking process before the tuber can be consumed. Similarly, maize requires soaking in an alkali solution (lime, for example, or lye made from wood-ashes) to remove the outer hull and soften the grains for making a dough that can be rolled into tortilla.<sup>77</sup>

Mechanized land preparation, planting, and harvesting could replace human labor as the dominant source of energy in agriculture. The use of modern energy services improves the productivity and dependability of crops.<sup>78</sup> For example, land that is irrigated, in general, is more than twice as productive as non-irrigated land. However, only four percent of agricultural land was thought to be under irrigation in sub-Saharan Africa as of 2008.<sup>79</sup> An irrigation pump can lengthen a product's growing season and end the need to fetch water and irrigate fields by hand.

The use of mechanical power in agriculture can reduce costs of planting in a bed system by as much as fifty-nine percent, increase the yield of the crop by around twenty percent, and reduce the crop's use of water by thirty percent.<sup>80</sup> A simple irrigation system can reduce water consumption of a crop by fifty percent and increase the yield of a crop by as much as forty percent.<sup>81</sup> The lifting and transport of goods from typical rural and remote locations to bring to central markets is often dangerous, physically taxing, and extremely time consuming. Using a mechanical power assist such as a gravity ropeway, can reduce transportation time from around four hours to just five minutes. The advantages of mechanical power in small-scale manufacturing, while evident, remain highly contextual, depending on the demand and the issues of the market and the type of resources available to the locality.<sup>82</sup>

Third, equitable access to mechanical power positively impacts the quality of life and the environment. Reclaiming lost opportunity costs in time will allow women, children, and men to engage in more economically productive and socially beneficial activities, such as attending school or pursuing some other economic endeavor. Such other economic activities could include setting up a food business that sells meals or establishing a

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76. FOOD & AGRIC. ORG. OF THE UNITED NATIONS, *Dimensions of Need: An Atlas of Food and Agriculture* (1995), <http://www.fao.org/3/u8480e/U8480E00.htm> [<https://perma.cc/7BSH-N7DM>].

77. WILLIAM O. JONES, *MANIOC IN AFRICA* (1959).

78. R. Anil Cabraal et al., *Productive Uses of Energy for Rural Development*, 30 ANN. REV. ENV'T & RES. 117, 124 (2005).

79. Sandra Postel, *Small-Scale Irrigation Boosts Incomes and Food Security in Sub-Saharan Africa*, NAT'L GEOGRAPHIC (Aug. 8, 2013), <https://blog.nationalgeographic.org/2013/08/08/small-scale-irrigation-boosts-incomes-and-food-security-in-sub-saharan-africa/> [<https://perma.cc/W2GL-NXCR>].

80. LIZ BATES ET AL., *EXPANDING ENERGY ACCESS IN DEVELOPING COUNTRIES: THE ROLE OF MECHANICAL POWER* 6 (2009).

81. *Id.* at 5.

82. *Id.* at 8.

tailoring shop to sew and repair clothes, or even a bakery. These changes could promote gender equality and women's empowerment in many ways. They could generate income, provide employment opportunities, facilitate time for attending school, and improve household health and safety by ensuring access to safe water. Alleviating some of the negative impacts of strenuous work could beneficially affect maternal health, while reducing hunger and poverty through increased food productivity and reduction of harvest losses.

Nevertheless, there remain challenges in the absence of data on rural motive power livelihoods. Knowledge gaps need to be filled on how to finance different kinds of equipment and identifying cost-effective opportunities for using such technology. It is also necessary to demonstrate the role of energy in diversifying and expanding employment opportunities.<sup>83</sup>

### III. ENERGY POVERTY AND SUSTAINABLE DEVELOPMENT<sup>84</sup>

This section aims to locate energy poverty within the broader framework of Sustainable Development (SD). It will focus on how economic and social development came to be recognized in policy and law as an inextricable component of SD. The major conferences on environment and development during the last half-century, and the political and legal documents resulting from them, demonstrate how this happened. The 1972 Stockholm Conference and its Declaration laid the foundations for forging the concept of SD.

Although the two competing and component attributes of SD—economic development and environmental protection—began jostling for ascendancy at the 1972 Stockholm Conference on the Human Environment (Stockholm), the term “SD” had not yet come into use. Whatever the relative tension among the three dimensions of economic and social development and environmental protection, there is little doubt that all three dimensions concern the energy poor and particularly the predicament of women and children. While it is perhaps more obvious that social and economic development are directly applicable to the EP, the definition of environment to include the human environment at Stockholm clearly extends environmental protection to energy poverty.

#### A. The 1972 Stockholm Conference on the Human Environment

Despite the fact that it had not been named a conference on sustainable development, the 1972 Stockholm Conference on the Human

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83. PACHAURI ET AL., *supra* note 67, at 11.

84. This section relies generally upon the author's following works: INTERNATIONAL ENERGY & POVERTY: THE EMERGING CONTOURS (Routledge 2016); GLOBAL ENERGY JUSTICE (West 2016); INTERNATIONAL ENVIRONMENTAL LAW (5th ed. West 2017).

Environment<sup>85</sup> (Stockholm) may well have been the chrysalis from which SD emerged as an international concept. Stockholm was primarily conceived as a conference about the environment. Policy makers and influential segments of the intelligentsia within industrialized countries began painting an apocalyptic picture of the growth of population, pollution, and the exhaustion of natural resources leading to a breakdown of the carrying capacity of the earth. Along with a growing awareness of environmental phenomena, such as acid rain and the poisoning of Japanese fisherman in Minamata Bay, a cross section of laypeople, influential elites, and decision-makers in the industrial world became fearful and apprehensive of the frailty of Earth.<sup>86</sup> In the face of these concerns, the United Nations (UN) moved to convene a special international environmental conference to discuss the human environment in 1972.<sup>87</sup>

While concern about the environment motivated many rich, industrialized countries, the poor, developing countries did not share the view that environmental degradation was the biggest threat facing the planet. For developing countries, poverty and the alleviation of misery remained a more poignant and real problem. Developing countries believed that greater development leading to material prosperity far outweighed any damage that might be caused by resource use and pollution. They were dismissive of the claim that industrialized countries were genuinely trying to steer them away from pitfalls into which the industrialized countries had already fallen. Developing countries also expressed resentment over the fact that industrialized countries—whose drive toward wealth had already consumed a great part of the earth’s resources and led to devastating pollution—were now asking the developing countries to remain poor, and more gallingly, to pay for the cleanup, restoration, and conservation of the earth. Moreover, many developing countries feared that new environmental standards adopted by industrialized countries would effectively bar the entry of their goods into industrial markets.<sup>88</sup>

This ideological impasse presented a formidable challenge to international environmental diplomacy. The question was resolved, as best it might be, by way of a compromise. The essence of that understanding was summed up in the Preamble to the Stockholm Declaration of the UN Conference on the Human Environment (Stockholm Declaration).<sup>89</sup> It stated, “[i]n the developing countries most of the environmental problems are caused by under-development,” and that industrialized countries must “direct

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85. See *Report of the United Nations Conference on the Human Environment*, U.N. Doc A/CONF.48/14/Rev.1 (June 5-16, 1972).

86. RENE DUBOS & BARBARA WARD, *ONLY ONE EARTH: THE CARE AND MAINTENANCE OF A SMALL PLANET* 114 (1972).

87. See *Report of the United Nations Conference*, *supra* note 85.

88. See generally *Report of the United Nations Conference on the Human Environment*, *supra* note 85, at 4.

89. United Nations, *Declaration of the United Nations Conference on the Human Environment*, 11 I.L.M. 1416, 1416–17 (1972) [hereinafter *Stockholm Declaration*].



their efforts to development, bearing in mind their priorities and the need to safeguard and improve the environment.”<sup>90</sup> Similarly, the industrialized countries were exhorted to make efforts to reduce the developmental gap between themselves and the developing countries.<sup>91</sup>

### **B. The 1982 United Nations Convention on The Law of the Sea (UNCLOS)**

Negotiations about the law of the sea commenced even before the Stockholm Conference. Those negotiations lasted until 1982 when the UN Convention on the Law of the Sea (UNCLOS) was opened for signature. UNCLOS finally came into force on November 16, 1994.<sup>92</sup> It is the strongest comprehensive environmental treaty now in existence or likely to emerge for quite some time.<sup>93</sup>

While UNCLOS does not use the term “sustainable development,” the two elements of SD (as then conceived), economic development and environmental protection or conservation, are embodied in it. Within their 200-mile exclusive economic zone (EEZ), UNCLOS confers both rights and duties on States to explore, economically exploit, conserve, and manage the ocean’s natural resources.<sup>94</sup> In the high seas beyond national jurisdiction, States are required to maintain or restore harvested species at levels that can produce maximum yield.<sup>95</sup> Moreover, part XI of UNCLOS on the Protection and Preservation of the Marine Environment deals with the various ways in which states are obliged to protect and preserve the marine environment.<sup>96</sup> In sum, UNCLOS attempted to balance economic development and environmental protection, and in doing so, established the importance of SD as embracing not only the atmosphere and land but also the oceans.

### **C. The 1983 World Commission on Environment and Development (Brundtland Commission)**

Despite the uneasy truce reflected in the Stockholm Declaration, the persistent clash of two world views, one asserting environmental protection and the other economic development, continued to impede the progress of SD. In order to resolve this problem, the World Commission on Environment and Development (also called the Brundtland Commission) was created by the General Assembly of the UN in 1983 and charged with proposing long-

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90. *Id.*

91. *Id.* at 1417.

92. United Nations Convention on the Law of the Sea, 1833 U.N.T.S. 3 (Nov. 16, 1994).

93. *Letter of Submittal of the Secretary of State to the President of the United States*, 7 GEO. INT’L ENVTL. L. REV. 77, 81 (1994).

94. United Nations Convention on the Law of the Sea, *supra* note 92, art. 56(1)(a).

95. *Id.* at art. 119(1)(a).

96. *Id.* at art. 192 to 237.

term environmental strategies for SD. That elusive term was not defined by the UN. After four years of deliberation and worldwide consultation, the Brundtland Report, *Our Common Future*, articulated the paradigm on which the Earth Summit, as the United Nations Conference on Environment and Development (UNCED) became known, and indeed the modern concept of SD, has since been based.<sup>97</sup> In essence, the report rejected the despairing thesis that environmental problems were past repair, spiraling out of control, and could only be averted by arresting development and economic growth. Instead, it argued that economic growth was both desirable and possible within a context of SD.<sup>98</sup>

In order to draw up a global plan for SD, the Brundtland Commission called for an international conference to act as the successor to the Stockholm Conference and carry forward its legacy. The UN General Assembly complied by convening the 1992 Earth Summit and directing it to further develop SD.<sup>99</sup>

#### **D. The 1992 United Nations Conference on Environment and Development (The Earth Summit)**

The Earth Summit, held in Rio de Janeiro, Brazil, in June 1992, and attended by over 180 countries and 100 heads of state, was heralded as the greatest summit-level conference in history.<sup>100</sup> It departed somewhat from its original agenda but resulted in five international instruments predicated on SD: (1) the Rio Declaration on Environment and Development;<sup>101</sup> (2) Agenda 21;<sup>102</sup> (3) the Global Consensus on Sustainable Development of Forests (Forestry Declaration);<sup>103</sup> (4) United Nations Framework Convention on Climate Change (UNFCCC);<sup>104</sup> and (5) the Convention on Biological Diversity (CBD).<sup>105</sup>

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97. WORLD COMM'N ON ENV'T & DEV., *OUR COMMON FUTURE* (1987), <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf> [<https://perma.cc/TYU4-72AC>].

98. *Id.*

99. GA Res. 43/196, at 147–48 (Dec. 20, 1988).

100. *Back in Time: What Was Rio 1992?*, UNITED NATIONS REG'L INFO. CTR. FOR W. EUR., <https://www.unric.org/en/rio20/27615-back-in-time-what-was-rio-1992> [<https://perma.cc/7T6E-4LG3>].

101. *See generally* U.N. Conference on Environment and Development, *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/26 (Vol. I) (Aug. 12, 1992) [hereinafter *Rio Declaration*].

102. *Back in Time: What Was Rio 1992?*, *supra* note 100.

103. U.N. Conference on Environment and Development, *Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests*, U.N. Doc. A/CONF.151/26 (Vol. III), annex III (Aug. 14, 1992) [hereinafter *Statement of Principles*].

104. U.N. Framework Convention on Climate Change, *adopted* May 9, 1992, 1771 U.N.T.S. 107.

105. U.N. Convention on Biological Diversity, *opened for signature* June 5, 1992, 1760 U.N.T.S. 79.

This section will briefly advance some conclusions about the environmental dimensions of the 1992 Earth Summit, dealing first with the legally binding treaties, and then moving on to the non-legally binding instruments. To begin, it is worth emphasizing a premise reiterated and reaffirmed in all the documents (legal and otherwise) emerging from the Earth Summit: that the right of developing countries to economic advancement cannot be divorced from the pursuit of environmentalism and climate change.<sup>106</sup>

We start with the UNFCCC, which is the most important treaty dealing with climate change because it is a treaty to which all nations of the world including the United States are parties. The objective of the UNFCCC is to “prevent dangerous anthropogenic interference with the climate system.”<sup>107</sup> The parties make commitments to mitigate climate change by addressing anthropogenic emissions and adapting to the impacts of climate change.<sup>108</sup> It is important to understand the rationale behind this objective.

The mitigation (cutting down or reduction) of carbon dioxide emissions addresses the environmental problems arising from the atmospheric accumulation of carbon dioxide that results in a global greenhouse effect (GGH). A GGH effect occurs when some of the heat which reaches the earth is trapped in it and cannot get out back into the atmosphere.<sup>109</sup> The result is a GGH effect causing global climate change that can lead to the catastrophic melting of ice packs in Greenland, a global rise of sea levels, and alteration in weather patterns.<sup>110</sup>

The UNFCCC lays the foundation for climate action within the framework of SD. Commencing with its Preamble, the UNFCCC makes abundantly clear that responses to climate change should be coordinated with social and economic development “taking into full account the legitimate priority needs of developing countries for the achievement of sustained economic growth and the eradication of poverty.”<sup>111</sup> Moreover, the UNFCCC stipulates that the parties have a right to and should promote SD policies, taking into account that economic development is an essential component of action against climate change.<sup>112</sup>

Furthermore, as we have noted, the UNFCCC coalesced with the other widely accepted treaty adopted at the Earth Summit: the Convention on

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106. U.N. Conference on Environment and Development, *Agenda 21*, U.N. Doc. A/CONF.151/26 (Vols. I, II, III) (June 13, 1992); Rio Declaration, *supra* note 101, at annex I; Statement of Principles, *supra* note 103; U.N. Framework Convention on Climate Change, *supra* note 104, at art. 2; U.N. Convention on Biological Diversity, *supra* note 105.

107. U.N. Framework Convention on Climate Change, *supra* note 104, at art. 2.

108. *Id.* at art. 4(1)(b), (e).

109. See LAKSHMAN GURUSWAMY & MARIAH ZEBROWSKI LEACH, INTERNATIONAL ENVIRONMENTAL LAW IN A NUTSHELL 243–59 (5th ed. 2017).

110. *Id.*

111. U.N. Framework Convention on Climate Change, *supra* note 104, at Preamble.

112. U.N. Framework Convention on Climate Change, *supra* note 104, at art. 3(4).

Biological Diversity (CBD),<sup>113</sup> by forcefully and unequivocally expressing the developmental priority of SD. Article 4(7) of the UNFCCC, and Article 20(4) of the CBD, reaffirm in unison that parties “will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.”<sup>114</sup>

The importance of economic development and the eradication of poverty are also affirmed in the nonbinding agreements or declarations embodying “soft law” norms.<sup>115</sup> Treaties and custom generally create binding obligations on nations, while soft law sources are largely aspirational. The Rio Declaration on Environment and Development (the Rio Declaration) continues to emphasize the importance of economic development while pursuing environmental protection. For example, the nascent right to a wholesome environment, embodied in the Stockholm Declaration, was replaced by a right to development.<sup>116</sup> The Rio Declaration refers to “developmental and environmental needs of present and future generations.”<sup>117</sup> This re-formulation impliedly negates or weakens the obligation to conserve expressed in the Stockholm Declaration.<sup>118</sup> In a similar vein, the obligation to *conserve*, implied by the duty to protect the environment for the benefit of future generations, found in the Stockholm Declaration, is displaced in the Rio Declaration by a right to *consume* or develop.<sup>119</sup> Furthermore, the obligation not to cause transboundary damage, contained in Principle 21 of the Stockholm Declaration, was weakened in the Rio Declaration by the addition of crucial language authorizing States “to exploit their own resources pursuant to their own environmental and developmental policies.”<sup>120</sup>

Agenda 21 was a second institutional non-binding agreement of the Earth Summit.<sup>121</sup> The Rio Declaration incorporated several allowances for nations’ developmental needs, perhaps at the expense of more environmentally protective provisions found in the Stockholm Declaration.<sup>122</sup>

In examining the individual strands that together comprised the braided rope of SD in 1992, it is important to understand the conceptual

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113. U.N. Convention on Biological Diversity, *supra* note 105.

114. U.N. Framework Convention on Climate Change, *supra* note 104, at art. 3(4).

115. Soft law is found in political instruments such as declarations (for example, the Rio Declaration), codes, guidelines and recommendations, and is to be contrasted to hard law found in legal instruments such as treaties. These political instruments are called soft law because they have the potential to generate state practice and *opinion juris* over time, and become hard law either as custom or by incorporation or adoption by a subsequent treaty.

116. Rio Declaration, *supra* note 101, at annex I.

117. *Id.*

118. Stockholm Declaration, *supra* note 89.

119. Rio Declaration, *supra* note 101, at annex I.

120. *Id.* (emphasis added).

121. U.N. Conference on Environment and Development, *supra* note 106. Agenda 21 was a non-binding action plan on sustainable development for the 21st century.

122. *See* Rio Declaration, *supra* note 101, at annex I.

evolution of these strands. The present concept of SD that has evolved over the years now possesses three elements: economic development, social development, and environmental protection. In 1992, SD remained a synopated concept consisting of only economic development and environmental protection.

### E. The 2000 Millennium Summit and the Millennium Development Goals (MDGs)

The Millennium Summit held in 2000 upstaged the Earth Summit of 1992 by hosting the largest gathering of world leaders in history as of that date.<sup>123</sup> The Millennium Summit adopted the UN Millennium Declaration, committing nations to a new global partnership to reduce extreme poverty and setting out a series of time-bound targets, with a deadline of 2015, which became known as the Millennium Development Goals (MDGs).<sup>124</sup>

The MDGs distilled the results of a wide array of global processes involving diverse actors over several years. Apart from conferences on SD and the environment, many international goals and targets were established through a series of other major subject-specific conferences in the 1990s. The agendas spanned education (Jomtien 1990),<sup>125</sup> children (New York 1990),<sup>126</sup> population (Cairo 1994),<sup>127</sup> social development (Copenhagen 1995),<sup>128</sup> and the status of women (Beijing 1995).<sup>129</sup> In 1995 and 1996, the Organization for Economic Cooperation and Development (OECD), Development Assistance Committee, set out to summarize the disparate agreements in a shorthand set of international development goals (IDGs) that could help motivate donors.<sup>130</sup>

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123. *The Largest Gathering of World Leaders in History Meets in New York to Discuss the Role of the United Nations in the 21st Century*, BBC NEWS (Sept. 7, 2000, 9:52 AM), <http://news.bbc.co.uk/2/hi/904903.stm>. [<https://perma.cc/HZB9-4KN2>].

124. *Millennium Development Goals*, UNITED NATIONS DEV. PROGRAMME, [https://www.undp.org/content/undp/en/home/sdgoverview/mdg\\_goals.html](https://www.undp.org/content/undp/en/home/sdgoverview/mdg_goals.html) [<https://perma.cc/CD2N-9DLJ>].

125. Inter-Agency Commission, WCEFA, *World Conference on Education for All: Meeting Basic Learning Needs*, UNESDOC (1990), <https://unesdoc.unesco.org/ark:/48223/pf0000097551> [<https://perma.cc/H83F-EZUE>].

126. *A Promise to Children*, UNICEF, <https://www.unicef.org/wsc/> [<https://perma.cc/EZF5-WPTY>].

127. *International Conference on Population and Development (ICPD)*, UNITED NATIONS POPULATION FUND (Sep. 5–13, 1994), <https://www.unfpa.org/events/international-conference-population-and-development-icpd> [<https://perma.cc/QSH8-AJZS>].

128. *World Summit for Social Development 1995*, UNITED NATIONS, <https://www.un.org/development/desa/dspd/world-summit-for-social-development-1995.html> [<https://perma.cc/VZH8-LH9E>].

129. *Fourth World Conference on Women (1995)*, UNITED NATIONS SYS., <https://www.unsystem.org/content/fourth-world-conference-women-1995-0> [<https://perma.cc/F58P-5BSA>].

130. John W. McArthur, *The Origins of the Millennium Development Goals*, 34(2) SAIS REV. OF INT'L AFFAIRS 5, 6 (2014).

The MDGs were time-bound and quantified targets for addressing extreme poverty in its many dimensions, including income poverty, hunger, disease, and lack of adequate shelter while promoting gender equality, education, and environmental sustainability.<sup>131</sup> The goals are expressed as individual benefits, granting each person on the planet the right to health, education, shelter, and security.

All 189 United Nations member states at the time (there are 193 currently) and at least 23 international organizations committed to help achieve the following MDGs by 2015:

1. To eradicate extreme poverty and hunger
2. To achieve universal primary education
3. To promote gender equality
4. To reduce child mortality
5. To improve maternal health
6. To combat HIV/AIDS, malaria, and other diseases
7. To ensure environmental sustainability
8. To develop a global partnership for sustainable development by 2015.<sup>132</sup>

An important inter-agency UN evaluation of the MDGs in 2015<sup>133</sup> demonstrated what the MDGs have achieved or failed to deliver.<sup>134</sup> The progress appears remarkable and demonstrates the extent to which explicit economic and social goals had become an integral part of SD.

This fact that the MDGs obtained a large increase in funding from ODA<sup>135</sup> to meet the additional funds required is particularly significant. The ODA is an international fund set up under the auspices of the OECD to provide the aid necessary to meet the MDGs. It is important in this context to point out that many of the poverty reduction goals are being pursued by civil society entities. They include nongovernmental organizations (NGOs), like the Gates Foundation,<sup>136</sup> and many other nonprofit associations operating independently of government and working toward social or political

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131. *Millennium Development Goals*, *supra* note 124.

132. *Millennium Development Goals*, UNITED NATIONS, <http://www.un.org/millenniumgoals/bkgd.shtml> [<https://perma.cc/K8UC-SG7B>].

133. DEP'T OF ECON. AND SOC. AFFAIRS OF THE UNITED NATIONS, THE MILLENNIUM DEVELOPMENT GOALS REPORT 2015 (2015), [http://www.un.org/millenniumgoals/2015\\_MDG\\_Report/pdf/MDGPP%202015%20rev%20\(July%201\).pdf](http://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDGPP%202015%20rev%20(July%201).pdf). (visited Dec. 10, 2015).

134. A more detailed assessment of the results of the MDGs is found in GURUSWAMY, *GLOBAL ENERGY JUSTICE* 59–86 (2016).

135. Official development assistance (ODA) is a term coined by the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) to measure aid. *Official Development Assistance (ODA)*, OECD, <http://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/official-development-assistance.htm> [<https://perma.cc/D4B4-3DE4>].

136. *See HIV Strategy Overview*, GATES FOUND., <http://www.gatesfoundation.org/What-We-Do/Global-Health/HIV> [<https://perma.cc/QQL2-2AJ9>].

objectives, like the International Committee of the Red Cross,<sup>137</sup> Oxfam,<sup>138</sup> and CARE,<sup>139</sup> or engaging in environmental analysis and advocacy, like Greenpeace,<sup>140</sup> World Wildlife Fund (WWF),<sup>141</sup> and the World Conservation Union (IUCN).<sup>142</sup> They may be financed by private donations, international organizations, governments, or a combination of these. Some, like the Gates Foundation, are privately endowed while others, such as Greenpeace or WWF, depend on grassroots member support.<sup>143</sup>

Churches and religious organizations also play a major part in this philanthropy and are civil society entities. A recent report revealed that religiously affiliated people not only give generously to their religious congregations but are more prone to give to charities of any kind.<sup>144</sup> It has been found that religious leaders and institutions are often the most trusted institutions in developing countries.<sup>145</sup> They are often the first groups that people turn to in times of need and contribute to in times of plenty.<sup>146</sup>

Partnerships are another kind of civil society entity. Partnerships consist of voluntary multi-stakeholder or multi-institutional initiatives and are organized around a common purpose.<sup>147</sup> Partnerships are also administered as their own entity, distinct from their constituent partners.<sup>148</sup> Private for-profit corporations embracing manufacturers, agribusinesses, mining, banks, hotels, and others have increased their role in international development.<sup>149</sup> It is claimed that the private sector in industrialized and

137. See INT'L COMM. OF THE RED CROSS, <https://www.icrc.org/> [<https://perma.cc/BL3P-N42V>].

138. See OXFAM, <https://www.oxfam.org/> [<https://perma.cc/BL3P-N42V>].

139. See CARE, <https://www.care.org/> [<https://perma.cc/FLJ4-W2VJ>].

140. See GREENPEACE, <http://www.greenpeace.org/> [<https://perma.cc/U2ZK-UN8Y>].

141. See WORLD WILDLIFE FUND, [www.worldwildlife.org](http://www.worldwildlife.org/) [<https://perma.cc/YVF5-7G8U>].

142. INT'L UNION FOR CONSERVATION OF NATURE, <http://www.iucn.org/> [<https://perma.cc/LK8P-A7R8>].

143. *About*, GREENPEACE, <https://www.greenpeace.org/usa/about/> [<https://perma.cc/XG4C-ELAF>]; *Financial Info*, WORLD WILDLIFE FUND, <https://www.worldwildlife.org/about/financials> [<https://perma.cc/W7MK-JFW8>].

144. Giving USA, *Giving USA Special Report on Giving to Religion*, GIVING USA (Oct. 24, 2017, 9:18 AM) <https://givingusa.org/just-released-giving-usa-special-report-on-giving-to-religion/> [<https://perma.cc/RE4D-FVGU>].

145. DEP'T FOR INT'L DEV., UK, FAITH PARTNERSHIP PRINCIPLES WORKING EFFECTIVELY WITH FAITH GROUPS TO FIGHT GLOBAL POVERTY 3 (2012), [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/67352/faith-partnership-principles.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/67352/faith-partnership-principles.pdf) [<https://perma.cc/8ELH-VNC2>].

146. *Id.*

147. UN-DESA/DSD, MULTI-STAKEHOLDER PARTNERSHIPS IN THE POST-2015 DEVELOPMENT ERA: SHARING KNOWLEDGE AND EXPERTISE TO SUPPORT THE ACHIEVEMENT OF THE SUSTAINABLE DEVELOPMENT GOALS 5 (2015), [https://sustainabledevelopment.un.org/content/documents/7366Partnerships\\_Knowledge\\_BackgroundPaper\\_final.pdf](https://sustainabledevelopment.un.org/content/documents/7366Partnerships_Knowledge_BackgroundPaper_final.pdf) [<https://perma.cc/RGS3-2ZW7>].

148. *Id.*

149. BRADFORD STRICKLAND, SURVEY OF TRENDS IN PRIVATE SECTOR PARTNERSHIPS FOR INTERNATIONAL DEVELOPMENT AND MODALITIES FOR ENGAGEMENT 2 (2014)

developing countries has become a key partner in international development.<sup>150</sup>

#### F. The Rio+20 United Nations Conference on Sustainable Development 2012

The Rio+20 United Nations Conference on Sustainable Development (UNCSD)<sup>151</sup> transpired 20 years after the Earth Summit. The UNCSD did not result in any treaties or legally binding documents. Instead, it produced a political Outcome Document, *The Future We Want*,<sup>152</sup> consisting of 283 paragraphs. This largely hortatory Outcome Document ran the gamut of international concerns and contained a long list of aims described below

This smorgasbord was the result of last-minute maneuvering by the host country, Brazil, to obtain consensus on a final document<sup>153</sup> that contrasted with the dissensus that prevailed at the 2009 Copenhagen UN Climate Change Conference.<sup>154</sup> But in order to find the needles buried in the Outcome Document's haystack of aspirations, it is necessary to examine the conference negotiations. The conference negotiations focused on three issues: the green economy, a new iteration of SD in the form of sustainable development goals (SDGs) to replace the MDGs, and better institutional support for the envisioned SDGs.

Discussions about the green economy sought to lay the foundations for an effective transition to a low-carbon economy. A few matters relevant to the green economy are worthy of mention. First, economic and social development had hitherto been premised on conventional economic growth measured by Gross Domestic Product (GDP). A green economy called for broader metrics and measures of progress and took account of environmental and social considerations not typically included in the GDP. Given that national accounting systems are based on monetary values in dollars, the conference sought to give monetary or economic values to environmental and social factors by placing economic or dollar values on environmental services provided by nature. There was some resistance to these ideas by those who felt that such an approach diminished the ethical and aesthetic essence of

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[http://www.creativeassociatesinternational.com/wpcontent/uploads/2014/08/Survey\\_Of\\_Trends.pdf](http://www.creativeassociatesinternational.com/wpcontent/uploads/2014/08/Survey_Of_Trends.pdf) [<https://perma.cc/G8JQ-KPJK>].

150. *Id.*

151. See United Nations Conference on Sustainable Development, *Report of the United Nations Conference on Sustainable Development*, U.N. Doc. A/CONF.216/16 (June 20–22, 2012).

152. G.A. Res. 66/288, U.N. Doc. A/RES/66/288, *The Future We Want* (July 27, 2012).

153. Int'l Inst. for Sustainable Dev., *Summary of the United Nations Conference on Sustainable Development*, 27 EARTH NEGOTIATIONS BULL., no. 51, 2012, at 22.

154. See generally Copenhagen Accord, Copenhagen, *Report of the Conference of the Parties, Part Two: Action Taken by the Conference of the Parties at its Fifteenth Session*, U.N. Doc. FCCC/CP/2009/11/Add.1 (Mar. 30, 2010).



nature by giving dollar values to qualities that could not be reduced to dollars.<sup>155</sup> But the prevailing wisdom was that a green economy would need to express some environmental and social values in dollars.<sup>156</sup>

Second, it became clear during the conference discussions that the green economy could not be established by governments alone and required the backing of the private sector. Consequently, the conference saw a need to increase the role of civil society and the private sector in promoting sustainable development policies.<sup>157</sup> Third, the need for a green economy drew attention to the fact that a green economy must be established at national and local level. Therefore, the responsibility for ushering green economics would need to be shifted primarily to developing countries.<sup>158</sup>

Conference negotiations on setting the foundations for an institutional framework for SD were directed toward the importance of launching a process to develop universal and inclusive SDGs applicable to all countries and to all three dimensions of sustainable development.<sup>159</sup> The envisioned SDG topics would extend momentum in international development work beyond the poverty-eradicating mission of the MDGs, which lapsed in 2015. In order to reinforce governance, the conference decided to create a “high-level” political forum that would replace the existing Commission on Sustainable Development.<sup>160</sup>

It is important to emphasize the extent to which the conceptualization of the SDGs and the green economy in the Outcome Document are radically different from SD as hitherto accepted. Up to this time, every formulation of SD in legal and political documents had given primary emphasis to eradicating poverty through economic and social development. A dramatically different picture now emerges. First, there is a new iteration of SD emphasizing global public goals (GPGs), discussed below, as distinct from the eradication of poverty, based on individual economic growth. Second, developing countries assume greater responsibility for SD. Previously, SD had been premised on the legal and political principle of common but differentiated responsibility—(CBDR), decreed in the UNFCCC. CBDR declared that it was the overriding responsibility of developed countries to help developing countries. The Outcome Document, however, appears to shift the onus by placing significant responsibility for the SDGs, and the green economy, on national states, the large majority of whom are developing countries.

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155. Suan Ee Ong et al., *Examining Rio+20's Outcome*, COUNCIL ON FOREIGN RELATIONS (July 5, 2012), <http://www.cfr.org/world/examining-rio20s-outcome/p28669> [<https://perma.cc/489P-CMCE>].

156. *See generally* Copenhagen Accord, *supra* note 154.

157. *Id.*

158. *Id.*

159. Frederico Ramos de Armas, *Rio+20—Start of a Process*, OUR PLANET 6 (Feb. 2013), [https://wedocs.unep.org/bitstream/handle/20.500.11822/9167/OP\\_FEB\\_2013.pdf?sequence=1&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/9167/OP_FEB_2013.pdf?sequence=1&isAllowed=y) [<https://perma.cc/Z9S8-CMM9>].

160. *Id.*

### G. The Sustainable Development Goals (SDGs) of 2015

Based on the Outcome Document of Rio+20, the 2015 SDGs were developed with input from the UN's 193 member states and an array of nongovernmental organizations. They are embodied in a large document that consists of seventeen goals, including 169 targets and indicators. The SDGs replaced the MDGs in January 2016. The SDGs deal with the following:

1. *Poverty*—End poverty in all its forms everywhere.
2. *Food*—End hunger, achieve food security, improve nutrition, and promote sustainable agriculture.
3. *Health*—Ensure healthy lives and promote wellbeing for all at all ages.
4. *Education*—Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. *Women*—Achieve gender equality and empower all women and girls.
6. *Water*—Ensure availability and sustainable management of water and sanitation for all.
7. *Energy*—Ensure access to affordable, reliable, sustainable, and modern energy for all.
8. *Economy*—Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.
9. *Infrastructure*—Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.
10. *Inequality*—Reduce inequality within and among countries.
11. *Habitation*—Make cities and human settlements inclusive, safe, resilient, and sustainable.
12. *Consumption*—Ensure sustainable consumption and production patterns.
13. *Climate*—Take urgent action to combat climate change and its impacts.
14. *Marine ecosystems*—Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.
15. *Ecosystems*—Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss.
16. *Institutions*—Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable and inclusive institutions at all levels.
17. *Sustainability*—Strengthen the means of implementation and revitalize the global partnership for sustainable development.<sup>161</sup>

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161. G.A. Res. 70/1, U.N. Doc. A/70/L.1 (Oct. 21, 2015).

## H. Global Energy Justice and the SDGS

Any assessment of how the SDGs impact global energy justice must begin with the fact that SDG 7, on affordable and clean energy, aims to ensure access to affordable, reliable, sustainable, and modern energy for all. As we have discussed, the MDGs did not include access to energy as one of their goals. There is no doubt that institutionalizing access to clean energy is a major step forward in securing energy justice for the energy poor. However, there are a number of questions that arise when implementing SDG 7.

First, how much energy constitutes access to energy? According to Simon Trace, a recognized expert on this matter,<sup>162</sup> the diverse needs of the EP give rise to different types of access to energy. There are variances between household (domestic), enterprise (livelihood or commercial), and community needs. Energy for households includes lighting, cooking, water and space heating, cooling, and access to information. For billions among the EP, the ability to earn a living depends on access to energy. Trace states, “[H]aving lighting after dark to keep a shop open longer, or fuel for an engine to mill grain, or a pump to irrigate land, can be the difference between earning a decent livelihood and remaining at or below the subsistence level and in poverty . . . .”<sup>163</sup> Additionally, community services provided by hospitals, schools, and street lighting require energy. Trace demonstrates why the goals of Sustainable Energy for All (SE4All)<sup>164</sup> require a better definition and understanding of what constitutes access for different purposes and services.

Moving forward, it is important that access to electricity remain the immediate, future, and final objective of access to energy for all. Nonetheless, it is important that we better define what we mean by access to electricity. The US consumes about 13,400 kWh of electricity per year, per person of electricity, while the consumption in Bulgaria and South Africa, which are at the bottom of the energy consumption ladder, is about 4,500 kWh.<sup>165</sup> In calculating the energy required to provide access to energy for all, the International Energy Agency (IEA) defines an initial threshold for energy access to be 250 kWh per year for rural households and 500 kWh per year

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162. Simon Trace, ENERGY AND ECONOMIC GROWTH APPLIED RESEARCH PROGRAMME, <https://energyeconomicgrowth.org/index.php/person/simon-trace-cbe> [https://perma.cc/7R4L-EENZ].

163. Simon Trace, *Measuring Access for Different Needs*, in *International Energy and Poverty: The Emerging Contours* 165 (Lakshman Guruswamy ed. 2015).

164. Sustainable Energy for All (SEforALL) is an international organization working with leaders in government, the private sector, and civil society to drive further, faster action toward achievement of Sustainable Development Goal 7 (SDG7), which calls for universal access to sustainable energy by 2030, and the Paris Agreement, which calls for reducing greenhouse gas emissions to limit climate warming to below 2° Celsius. *About Us*, SUSTAINABLE ENERGY FOR ALL, <https://www.seforall.org/about-us> [https://perma.cc/FNY5-V8G3].

165. Morgan Bazilian & Roger Pielke, *Making Energy Access Meaningful*, 29 ISSUES IN SCI. & TECH. 4, 75 (2013).

for urban households, assuming five people per household.<sup>166</sup> This equates to 50 to 100 kWh per year, per person, or about 0.5% of that consumed by the average American and 1.7% of that of the average Bulgarian and South African. It is difficult to envision how the domestic, livelihood, or community needs for energy, referred to above, can be met by such a meager and inadequate supply of electricity.

Second, what are the costs of access to clean energy? Experts differ. According to EurActiveit, it would cost \$50 billion per year, but no evidence is offered to support this figure.<sup>167</sup> Others estimate about \$1 trillion to achieve total global access, rising to 750 kWh per capita for new connections by 2030, and seventeen times more (\$17 trillion) to achieve a level of worldwide access equivalent to that in Bulgaria.<sup>168</sup> The Global Tracking Framework of the IEA and World Bank has estimated the cost of achieving the three SE4All goals at \$600 billion per year over and above existing levels, entailing a doubling or tripling of financial flows over current levels.<sup>169</sup>

Third, to what extent does the individual private good of access to energy conflict with the GPGs of Combating Climate Change (SDG 13) and other GPGs aiming at a Sustainable Infrastructure and Green Development (SDGs 9), Sustainable Cities (SDG 11), Responsible Consumption and Production (SDG 12), and on Peace, Justice and Strong institutions (SDG 16)? The costs of achieving these other SDGs become critical in answering this question.

According to UN estimates, between \$3.3 trillion and \$4.5 trillion would be needed in the developing world to achieve these goals. Current investment in these sectors is around \$1.4 trillion, creating an annual investment gap of about \$2.5 trillion.<sup>170</sup> But action to combat climate change will cost between one to three percent of global gross domestic product.<sup>171</sup> According to the Intergovernmental Panel on Climate Change (IPCC), the United Nations body for assessing the science related to climate change,

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166. INT'L ENERGY AGENCY, *WORLD ENERGY OUTLOOK 2012* 530 (2012).

167. Milton Catelin, *Soaring energy costs makes Europeans poor*, EURACTIV (May 21, 2013), <https://www.euractiv.com/section/trade-society/opinion/soaring-energy-costs-make-europeans-poor/> [<https://perma.cc/4NPB-LR2R>].

168. Bazilian & Pielke, *supra* note 165.

169. World Bank Group, *SE4ALL Global Tracking Framework*, WORLD BANK, <https://www.worldbank.org/en/topic/energy/publication/Global-Tracking-Framework-Report> [<https://perma.cc/Q4DF-2MH7>].

170. Sophie Yeo, *Sustainable Development Goals Face \$2.5 Trillion Funding Shortfall*, CLIMATE HOME (Jan. 20, 2015), <http://www.climatechangenews.com/2014/06/24/sustainable-development-goals-face-2-5-trillion-funding-shortfall/> [<https://perma.cc/3W26-BSXT>]; Aaron Maasho, *U.N. Conference Agrees on Plan to Finance Development Goals*, REUTERS (July 16, 2015), <http://www.reuters.com/article/us-africa-development-idUSKCN0PQ21D20150716> [<https://perma.cc/664A-5SCH>].

171. Juliette Jowit & Patrick Wintour, *Cost of Tackling Global Climate Change Has Doubled, Warns Stern*, THE GUARDIAN (June 25, 2008, 7:01 PM), <http://www.theguardian.com/environment/2008/jun/26/climatechange.scienceofclimatechange> [<https://perma.cc/28ZN-6LJG>].

cutting CO<sub>2</sub> emissions to limit global temperature rises to two degrees Celsius would cost up to four percent of global GDP in 2030, six percent of global GDP in 2050, and eleven percent in 2100.<sup>172</sup> These estimates have been criticized as underestimating the true costs.<sup>173</sup>

Producing these estimates remains a challenge, particularly because of relatively well-known, but limited integration of scientific knowledge across disciplines. The integrated assessment community, on the one hand, has extensively assessed the influence of technological and socio-economic uncertainties on low-carbon scenarios and associated costs. The climate modeling community, on the other hand, has spent years improving its understanding of the geophysical response of the Earth system to emissions of greenhouse gases.<sup>174</sup>

Notwithstanding the actual costs of climate action, the fact is that it will cost trillions of dollars. Together with the costs of the other GPGs, the previously noted predisposition of aid-granting bodies to favor these GPGs, and the deficit in funding, it is difficult to resist the conclusion that funding for access to energy faces a mottled, even daunting, future.

#### IV. TRANSITIONAL CONCLUSIONS

The most important transitional conclusions may be summarized at this point. First, the inability to access energy both causes poverty and disables impoverished people from developing. The connection between energy and poverty is fundamental to the discourse on sustainable development. Second, the plight of the EP cannot be remedied by relying solely on the states within which they reside. The energy-poor have been glossed over by their identification only as national problems falling within the sovereign jurisdiction of the developing countries within which they reside. They are treated as problems of developing countries and not perceived as burdened societies calling for international action, sometimes independent of the countries in which they reside. It would be a giant step forward if civil society organizations could shake themselves from their preoccupation with climate change to focus at least some attention on the real problems of energy poverty.

Third, access to energy through electricity remains the ultimate objective. Unfortunately, it is a cost-prohibitive and protracted remedy that will take decades to implement and does not offer any interim solutions. During the long wait for electricity, large segments of the EP will remain

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172. Graham Lloyd, 'Carbon Cure Cost More Painful Than the Illness', *Says Bjorn Lomborg*, THE AUSTRALIAN (Apr. 15, 2014), <https://www.theaustralian.com.au/national-affairs/climate/carbon-cure-cost-more-painful-than-the-illness-says-bjorn-lomborg/news-story/092f71693cef505ef687cd1a898a12> [https://perma.cc/W4QE-339S].

173. *Id.*

174. Joeri Rogelj et al., *Probabilistic Cost Estimates for Climate Change Mitigation*, 493 NATURE 79, 79–82 (2013).

energy-deprived for many decades unless they are offered intermediate solutions based on appropriate/affordable sustainable energy technologies (ASETs). Employing ASETs can begin the journey out of energy poverty.

Fourth, allowing the EP to languish in their current state violates fundamental concepts of international justice and SD. The final part of this article will examine the largely ignored conceptual roots of SD-based in justice. It will be argued that the global jurisprudential lineages of justice are intertwined with common strands of faith and reason, traversing the variegated cultural and religious traditions of the world.

### V. FAITH, REASON, AND THE JURISPRUDENTIAL LINEAGES OF SD

Law, simply defined as “the body of rules, whether proceeding from formal enactment or from custom, which a particular state or community recognizes as binding on its members or subjects,”<sup>175</sup> is part of the socio-political structure of all countries. The term “law” refers to a concept that embraces national (municipal) laws, and the law of nations, called public international law, as well as transnational laws, based on contract or custom, that govern transactions between corporations, civil society entities, and individuals belonging to different nation-states.<sup>176</sup> In this general sense, law arises from normal human and societal interaction. The specifics vary, changing greatly across time and culture, as do the theories that embody the justice behind law. This variance is significant for any project of law aimed at a global goal. However, in contrast to this variance, there are also powerful parallels that may not be obvious at first glance. To begin our endeavor, we will consider first the concepts of law and then the theories of justice embodied within four jurisprudential lineages: Western, Islamic, Buddhist, and Confucian.

Within legal theory, the application of natural law to the law of nations has become attenuated, even though natural law is embodied in the Statute of the International Court of Justice, which stipulates that the International Court of Justice (ICJ) apply “the general principles of law recognized by civilized nations” as a primary source of law.<sup>177</sup> The purpose of our brief survey is to suggest that concepts of justice, applicable to global energy poverty, may be found within different global jurisprudential lineages, including Western, Islamic, Buddhist, and Confucian jurisprudence. Consequently, it is possible to discover general principles of law and justice within the world’s jurisprudential heritage. These general principles of law and justice should form part of the legal response to global energy poverty.

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175. *Law*, OXFORD ENGLISH DICTIONARY ONLINE, <http://www.oed.com/> [<https://perma.cc/WN9H-5VRA>].

176. *Id.*

177. 1945 I.C.J. 59 Stat. 1031 at art. 38(1)(c).

The needs of the energy-poor must be addressed within the ethical, political, and legal framework of SD. Two questions arise in this context. The first relates to whether SD is embedded in international law. The answer to this question is clear. SD is unequivocally expressed in the UNFCCC,<sup>178</sup> which states categorically that “the Parties have a right to, and should promote sustainable development.”<sup>179</sup> The application and implementation of this rule or principle of law is reinforced and bolstered by understanding its ethical and rational justification. It has been suggested above that SD is based on concepts of justice found within different global jurisprudential lineages, including Western, Islamic, Buddhist, and Confucian jurisprudence. Because SD is predicated on these unarticulated general principles of law and justice, it becomes necessary to uncover and allow these principles of justice to overtly fashion the legal response to global energy poverty.

A second question that arises is the extent to which the jurisprudential lineages of Western, Islamic, Buddhist, and Confucian jurisprudence embody and institutionalize faith and reason. In answering this question, we begin with reason in each of these four religious traditions. Devotees of religion are not materialists who hold that matter is the fundamental substance in nature and that all things are results of material interactions. They do not subscribe to philosophical materialism, which claims mind and consciousness are by-products or epiphenomena of material processes such as the biochemistry of the human brain and nervous system without which they cannot exist.<sup>180</sup> Neither are they behaviorists who hold that human and animal behavior can be explained in terms of conditioning, without appeal to thoughts or feelings, or that psychological disorders are best treated by altering behavior patterns.<sup>181</sup>

The followers of all these religious traditions claim that their religion is not unreasonable and may be justifiable by reason. According to Aquinas, perhaps the greatest philosophical theologian in the western tradition, human reasoning can illuminate some of what the Christian faith professes.<sup>182</sup> Those aspects of the divine life that can be demonstrated by reason are called natural theology. The doctrines of natural theology seek to demonstrate God’s existence or aspects of his nature by means of human reason and experience. This *philosophical* inquiry does not rely on supernaturally revealed

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178. *Climate Change*, UNITED NATIONS, <https://sustainabledevelopment.un.org/topics/climatechange> [<https://perma.cc/DPM7-3T2G>].

179. U.N. Framework Convention on Climate Change, *supra* note 104, at art. 3(4).

180. GEORGE NOVACK, *THE ORIGINS OF MATERIALISM* (1979). Karl Marx and Friedrich Engels extended the concept of materialism to elaborate a materialist conception of history, employing Hegelian dialectics. Marx and Engels stripped them of their idealist aspects, fused them with materialism, and created the worldview of dialectical materialism.

181. See R.A. Moxley, *Pragmatic Selectionism: The Philosophy of Behavior Analysis*, in *BEHAVIOR ANALYST TODAY* 108–25 (2004), <https://psycnet.apa.org/fulltext/2014-44745-007.html>. [<https://perma.cc/FP33-CAXE>].

182. See generally 1 ST. THOMAS AQUINAS., *SUMMA CONTRA GENTILES* (Anton C. Pegis trans., Univ. of Notre Dame Press 1975).

truths, but on the senses or rational methods of investigation.<sup>183</sup> For example, Aquinas argued that humans are enabled through reason to understand how the good should be pursued and the evil eschewed in law.<sup>184</sup>

Similarly, some strands of other religions also share the view that reason may be used to understand the contents of the divine message or eternal truths promulgated by their religion. Islam is an Abrahamic and deistic religion based on faith. Within Islam, a whole tradition of *falsafa*<sup>185</sup> developed Aristotelian philosophy and logic, represented by such distinguished thinkers as Ibn Si<sup>na</sup> (Avicenna), Ibn Rushd (Averroes) and many others, but also by their critics such as Al-Ghaza<sup>li</sup>. In Buddhism, philosophers such as Vasubandhu, Digna<sup>ga</sup>, Dharmaki<sup>rti</sup> and their Sautra<sup>ntika</sup>-Yoga<sup>ca</sup>-ra school, developed logical principles while being practicing monks. Even religions that reject the usefulness of logic and logic-based reasoning as a tool in the inquiry into revealed truths use logic practically in their argumentation, rhetoric, and debate.<sup>186</sup>

But what about faith? The term faith in the West carries Christian connotations, essentially trust in a personal God. This applies also to several other terms such as grace or salvation and perhaps even Heaven or Hell. Christianity teaches that faith is a gift of God and is aroused in our hearts through the work of the Holy Spirit. The aim is to overcome the estrangement between God and his creatures as a result of Original Sin. Reconciliation with God is attained through faith in Jesus. Christianity is rooted in theism with God as the operating cause.<sup>187</sup>

However, is it possible to refer to faith with reference to Buddhism? In Buddhist tradition, the estrangement that marks human life, and creates many conflicts individually and socially, is the result of fundamental delusion and ignorance. The ignorance derives from the failure to see the devotee's true relationship to Reality and to others, as well as the delusion that humans are self-subsistent, independent beings in the world.<sup>188</sup>

In both religions, Christianity and Buddhism, faith is viewed as trust, not self-generated, but brought about by a deep inner movement in the mind and spirit, whether through the revelation of God in Christianity or through the process of awakening or enlightenment in Buddhism. Christianity points to the way of reconciliation with God; Buddhism highlights a deep spiritual

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183. NORMAN KRETZMANN, *THE METAPHYSICS OF THEISM: AQUINAS' NATURAL THEOLOGY IN SUMMA CONTRA GENTILES I* 56 (1997).

184. *Id.*

185. Translated as philosophy—*falsafa* (literally: “philosophy”), which refers to philosophy as well as logic, mathematics, and physics. Hassan Hassan, *Don't Blame It on al-Ghazali*, QUANTARA.DE (2013), <https://en.qantara.de/content/the-decline-of-islamic-scientific-thought-dont-blame-it-on-al-ghazali> [<https://perma.cc/K2ST-VDZH>].

186. Piotr Balcerowicz, *Logic in Religious and Non-Religious Belief Systems*, 84 INT'L J. PHIL. RELIGION 113, 114 (2018).

187. Alfred Bloom, *The Meaning of Faith in Buddhism and Christianity*, SHIN DHARMA NET, <http://bschawaii.org/shindharmanet/faith/> [<https://perma.cc/6HSZ-THXU>].

188. *Id.*



awakening leading to mutual interdependence with all other beings within all-embracing Reality that sustains lives.<sup>189</sup>

The essence of Buddhism is awakening to the obligation of life, which is symbolized in figures such as Amida Buddha, whose Vows reflect the interdependent nature of life.<sup>190</sup> The understanding of these Vows gives focus and meaning to our awakening that we are part of the larger network of Reality, with responsibility to work for the welfare of all beings.<sup>191</sup>

In Buddhism, faith does not have God as the object or foundation of trust. It does not require belief in a personal God, as in Christianity. Faith, as trust, is not self-generated but arises out of the circumstances of life, like the sun brings light into a dark world. Trust is the experience of the whole person and arises naturally as a dawning, a eureka experience, of the true nature of human existence, that we all depend on family, community, and nature which support and enable our life process. Buddhism is a religion of awakening (bodhi) or enlightenment.<sup>192</sup>

Consequently, Christians and Buddhists can use the common English word “faith” in discussing the basis of their religions. However, it is clear that the foundation of their understanding differs within the respective traditions. Faith in Christianity is not identical conceptually with faith in Buddhism. Nevertheless, the same terms may be used in common in our struggle to facilitate understanding through explanation and clarification. It is here that dialogue becomes important to clarify the spirituality of each faith.<sup>193</sup>

Another lineage considered is Confucianism, which is often characterized as a system of social and ethical philosophy rather than a religion. But as an esteemed commentator has pointed out, Confucianism is built on an ancient religious foundation to establish the social values, institutions, and transcendent ideals of traditional Chinese society.<sup>194</sup> It is a “civil religion”<sup>195</sup> because it reflects the sense of religious identity and common moral understanding at the foundation of a society’s central institutions. Confucianism was part of the Chinese social fabric and way of life; to Confucians, everyday life was the arena of religion.<sup>196</sup>

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189. *Id.*

190. This is based on an understanding that no thing spontaneously exists all on its own. All things are influenced by many others. All phenomena, including both physical and mental, have many contributing factors and conditions of causation. See Brian Thompson, *All Things Are Interdependent*, ZEN THINKING (June 16, 2015), <http://www.zenthinking.net/blog/finding-peace-through-our-mutual-co-existence-and-interdependency> [https://perma.cc/EU32-8XQ2].

191. *Id.*

192. *Id.*

193. *Id.*

194. Judith A. Berling, *Confucianism, Focus on Asian Studies*, 2 ASIAN RELIGIONS 1, 5–7 (1982).

195. ROBERT BELLAH, *THE BROKEN COVENANT: AMERICAN CIVIL RELIGION IN A TIME OF TRIAL* 3 (1975).

196. Berling, *supra* note 194.

### A. Western Jurisprudence

Western jurisprudence has two classical schools of thought: natural law and legal positivism. Natural law, as expounded by its most authoritative expositor, Thomas Aquinas, assumes one of four forms: (1) eternal law, referring to divine reason, known only to God as His plan for the universe; (2) divine law, which is revealed in the scriptures and is God's positive law for mankind; (3) natural law, which is the eternal law as it applies to humans, which through reason enables them to naturally understand how the good should be pursued and evil eschewed in law; and (4) human law, created for the purpose of implementing natural law.<sup>197</sup> Only two of these are of relevance for our purposes: natural law and human law. Human law is, as defined by Aquinas, "an ordinance of reason for the common good, made by him who has care of the community, and promulgated."<sup>198</sup> It is predicated on the premise that the law that "is" enacted by the law-maker expresses law that "ought" to be enacted under principles of natural law.

With regard to general principles of law based on faith and reason, Aristotle is instructive. Aristotle devotes Book V of the *Nicomachean Ethics* to justice.<sup>199</sup> He articulates the same general idea by noticing that while much that is observed as law is locally variable and arbitrary, there appear to be fundamental common principles across different polities. Some principles may then be legal simply "by enactment," but others seem to be so "by nature." Explorations of the nature of humans as rational and political animals may then help to underpin the idea of that which is "right" by nature.<sup>200</sup> The Stoics extended this universally. They reasoned that individuals should, by way of rational argument, extend concern for themselves in concentric circles until all humankind, meaning the entire human race, is eventually included. This attitude of the mind, which allots to each their own, and maintains this community of human association, is called "justice."<sup>201</sup>

Roman jurists adapted some of the Stoic ideas of natural law in their codification of the civil law by Justinian in the *Corpus Juris Civilis*. For medieval and early modern Europe, the existence of the Justinianic compilation of the whole body of Roman law was held by many thinkers to embody in large measure the promise of law as written reason.<sup>202</sup>

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197. The fundamentals of Aquinas's natural law doctrine are contained in the so-called Treatise on Law in Thomas's masterwork, the *Summa Theologiae*, comprising Questions 90 to 108 in the first part of the second part of the three-part *Summa*. THOMAS AQUINAS, *SUMMA THEOLOGICAE* (Fathers of the English Dominican Province eds., Benziger Bros. 1947) (1274).

198. *Id.* at *Summa* I-II, question 90, answer 4.

199. ARISTOTLE, *NICOMACHEAN ETHICS* (T.H. Irwin trans., Hackett Publ'g Co., 1999) (c. 384 B.C.E.).

200. BEVERLEY BROWN & NEIL MACCORMICK, *LAW, PHILOSOPHY OF* (1998).

201. JULIA ANNAS, *THE MORALITY OF HAPPINESS* 316- 317 (1993).

202. The *Corpus Juris Civilis* is the body of civil law issued under Justinian I. The other two parts were *Institutes of Justinian*, and the *Codex Justinianus*. A fourth part, the *Novels* (or

The applicability of law to all nations, as distinct from that which prevailed within a nation or state or polity, is canvassed by a rich lineage of philosophers. The origins of the idea of the law of nations—the *ius gentium*<sup>203</sup>—was first articulated in the *Institutes* of the Roman jurist Gaius (130–180). The *ius gentium* is closely associated with the *ius naturale*.<sup>204</sup> According to Aquinas, the *ius gentium* was that aspect of positive law that was immediately derived by deduction from the natural law and was universally applicable across jurisdictional boundaries.<sup>205</sup> Francisco Suárez (1548–1617) divided *ius gentium* into two groups. The first group comprised those laws that were part of the domestic law of most commonwealths, such as laws governing property and domestic commerce. The second group comprised those laws that were common in the way they coordinated relationships between peoples and commonwealths (laws *inter nationes*). Examples included the laws governing war, international commercial interactions, and the treatment of diplomats.<sup>206</sup> It was the almost completely universal character of the *ius gentium*, Suárez held, that invested it with a moral status more authoritative than other positive laws.<sup>207</sup>

Hugo Grotius (1583–1645), often known as the father of international law, developed his theory of natural law and natural rights from the Roman Law found in the Digest,<sup>208</sup> and he concluded that this law was binding internationally.<sup>209</sup> Thomas Hobbes (1588–1679) perceived the law of nature as the law which all rational humans follow in order to survive and prosper. He divided the law of nature into the laws of man and that of states; the latter being, according to Hobbes, the law of nations.<sup>210</sup> Vattel (1714–1767) redefined the applicability of natural law internationally by clarifying that the laws of nature had to be specifically adapted to law of nations

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*Novellae Constitutiones*), was added later. *The Corpus Juris Civilis* contained the *Digest*, also known as the *Pandects*, a compilation ordered by the emperor Justinian I in the 6th century (AD 530–533). It spans 50 volumes and represented a reduction and codification of all Roman laws up to that time. TONY HONORÉ, *Justinian's Codification*, THE OXFORD CLASSICAL DICTIONARY 803–04 (Simon Hornblower and Antony Spawforth eds., 3d rev. ed., 2003).

203. The *ius gentium* or *jus gentium* (Latin for “law of nations”) is a concept of international law within the ancient Roman legal system and Western law traditions based on or influenced by it.

204. *Ius naturale* is Latin for natural right, the laws common to all beings. Samuel Gregg, *Natural Law and the Law of Nations*, in NATURAL LAW, NATURAL RIGHTS AND AMERICAN CONSTITUTIONALISM, <http://www.nlnrac.org/earlymodern/law-of-nations> [<https://perma.cc/QE7V-J6MB>].

205. *Id.*

206. *Id.*

207. *Id.*

208. The Digest, also known as the Pandects (Latin: Digesta seu Pandectae, adapted from Ancient Greek: πανδέκτης pandéktēs, “all-containing”), is a name given to a compendium or digest of juristic writings on Roman law compiled by order of the Eastern Roman emperor Justinian I in the 6th century CE (530–533).

209. BENJAMIN STRAUMANN, ROMAN LAW IN THE STATE OF NATURE: THE CLASSICAL FOUNDATIONS OF HUGO GROTIUS' NATURAL LAW 4–5 (2015).

210. THOMAS HOBBS, DE CIVE 28 (H. Warrender ed., 1983).

because the law of nations dealt with different legal problems from those found within a country. He called for the use of “right reason” in adapting the laws of nature to the law of nations.<sup>211</sup>

In contrast, legal positivism refutes the conflation of “is” and “ought” and recognizes duly enacted legislation or case law as law, even if it conflicts with principles of natural law. If the law that “is” so enacted is substantively flawed, it “ought” to be changed. However, the law that is enacted is valid, even if it violates natural law, until and unless it is changed. Legal positivism has given rise to analytical jurisprudence, a method of legal study that concentrates on the logical structure of law, the meanings and uses of its concepts, and the formal terms and the modes of its operation.<sup>212</sup>

According to noted British jurist John Austin’s<sup>213</sup> classic definition, law is the command of a sovereign backed by force.<sup>214</sup> The “sovereign” is interpreted to include a democratic legislature. While agreeing on the separation of law and morals, or distinguishing “is” from “ought” in law, legal positivists have delineated their positions from different conceptual predicates. In his famous book, *The Concept of Law*,<sup>215</sup> the great legal philosopher H.L.A. Hart (1907–92) restated the positivist case within a framework of descriptive sociology and analytical jurisprudence, and he defined a legal system as a combination of primary and secondary rules.<sup>216</sup> By contrast, Hans Kelsen (1881–1973), another great legal philosopher, advanced a pure theory of law.<sup>217</sup> According to Kelsen, the traditional legal philosophies at the time were hopelessly contaminated with political ideology and moralizing on the one hand, or, on the other hand, with attempts to reduce the law to natural or social sciences. He rejected both of these reductionist endeavors and suggested a “pure” theory of law that avoided reductionism of any kind.<sup>218</sup>

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211. EMER DE Vattel, *LES DROITS DES GENS* 9 (Béla Kapossy & Richard Whatmore eds., 2008).

212. *Analytical Jurisprudence*, BLACKWELL REFERENCE ONLINE, <http://www.blackwellreference.com/> (last visited Dec. 5, 2015) (available by subscription).

213. (1790–1859).

214. JOHN AUSTIN, *THE PROVINCE OF JURISPRUDENCE DETERMINED* 208 (W. Rumble ed., 1995) (1832).

215. H. L. A. HART, *THE CONCEPT OF LAW* (1961).

216. According to Hart, “primary” rules are rules of obligation which impose duties, *i.e.*, require people to do or abstain from certain actions, whether they wish to or not. Such rules are to be contrasted with secondary rules under which human beings “may by doing or saying certain things introduce new rules of the primary type, extinguish or modify old ones, or in various ways determine their incidence or control their operations.” *Id.* at 79. There are several types of secondary rules in Hart’s scheme: rules specifying criteria for identification of valid rules of the legal system, rules empowering legislators and courts to legislate and adjudicate, and rules specifying sanctions. In essence, primary rules impose duties while secondary rules “confer powers, public or private.” *Id.*

217. HANS Kelsen, *PURE THEORY OF LAW*, (Max Knight trans., 1967).

218. Kelsen characterized laws as rules or interlinked norms. A norm was a valid norm if a higher norm authorized the making of the lower norm and if it had been made in accordance with the higher authorizing law. He explained that the chain of validity will

Many influential strands of modern and contemporary Western jurisprudence have moved from an analytical and philosophical approach to more sociological and empirical approaches demonstrated, for example, by legal realism,<sup>219</sup> critical legal theory,<sup>220</sup> and pragmatic instrumentalism.<sup>221</sup> These schools of thought are mostly concerned with the relationship between the law and the real-world outcomes of the law as experiments in social engineering and the testing grounds for social and economic policies.<sup>222</sup> Long before these twentieth century developments, Jeremy Bentham (1748–1832), an English jurist, re-drew the contours of law, which had hitherto been based on case law, and recreated a vastly expanded domain of law in a way that had not been done before. He called for a complete, comprehensive, and integrated re-envisioning of the existing system of law and government focused on legislation and its implementation.<sup>223</sup>

Any discussion about justice and law must include John Rawls, whose book *A Theory of Justice*<sup>224</sup> is the most influential exposition of justice in the twentieth century. He is a political philosopher rather than a legal philosopher, who does not bridge the perplexing separation of political and legal philosophy; indeed, he hardly mentions the word “law.”<sup>225</sup> Despite this, his enormous importance requires that we clarify and situate Rawls’ conception of justice within the legal context and traditions of natural law and positivism.

John Rawls’ theory of justice is predicated on what society “ought” to be. He makes the normative case for a society based on justice as fairness; a necessary corollary of his theory is that laws must reflect justice, and they cannot just express the will of the sovereign or lawmaker. Based on his conclusion that laws should reflect more than the will of the sovereign, some writers view Rawls as articulating a non-Thomian species of natural law.<sup>226</sup> Others, who take a more traditional and conservative view of natural law, dismiss any such connection. According to them, a “minimalist natural law”

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ultimately run out of higher authorizing valid norms, a point where it was not possible to proceed further. The validity of law (norm) would then rest on a “grundnorm,” which is sometimes translated as “basic norm.” Kelsen described the grundnorm as the fundamental assumption made by people in society about what would be treated as law. *Id.*

219. See HORWITZ, MORTON J. HORWITZ, *THE TRANSFORMATION OF AMERICAN LAW, 1870–1960: THE CRISIS OF LEGAL ORTHODOXY* 193 (1992).

220. See ROBERTO MANGABEIRA UNGER, *THE CRITICAL LEGAL STUDIES MOVEMENT* (1983); MARK KELMAN, *A GUIDE TO CRITICAL LEGAL STUDIES* (1987).

221. See ROBERT SUMMERS, *INSTRUMENTALISM AND AMERICAN LEGAL THEORY* 20 (1982).

222. See HORWITZ, *supra* note 219; KELMAN *supra* note 220; SUMMERS *supra* note 221; UNGER *supra* note 220.

223. DAVID LIEBERMAN, *THE PROVINCE OF LEGISLATION DETERMINED* 286 (1989).

224. JOHN RAWLS, *A THEORY OF JUSTICE* (rev. ed. 1999).

225. HAROLD J. BERMAN, *FAITH AND ORDER: THE RECONCILIATION OF LAW AND RELIGION* 296 (1993).

226. See LLOYD WEINREB, *NATURAL LAW AND JUSTICE* (1987) (*especially* chapter four, “Natural Law without Nature”).

falls outside the traditional scholastic tradition of commentators and casuists, who situate natural law within a rich and highly determinate theory of nature, human nature, and finality.<sup>227</sup> For the purposes of this section, it is more important to understand what he says than to classify him under any predetermined taxonomy.

In *The Law of Peoples*,<sup>228</sup> John Rawls lays the foundations for his concept of international justice based on a “realistic utopia” grounded in socio-political, institutional, and psychological reality.<sup>229</sup> Rawls expands on his “original position,” a thought experiment expounded in *A Theory of Justice*<sup>230</sup> and developed in numerous other works. In *A Theory of Justice*, Rawls envisions a collection of negotiators from liberal democratic societies assembled behind a veil of ignorance, shorn of any knowledge that might be the basis of self-interested bias—such as knowledge of their gender, wealth, race, ethnicity, abilities, and general social circumstances. Rawls explains that the purpose of such a negotiation was to arrive at legitimate principles of justice under fair conditions—hence “justice as fairness.”<sup>231</sup>

In *The Law of Peoples*, Rawls addresses justice in the international context. In doing so, he extends his theories from liberal democratic states to “decent” peoples living in nondemocratic international societies. Rawls envisions such “well-ordered hierarchical societies” to be non-liberal societies whose basic institutions meet specified conditions of political right and justice (including the right of citizens to play a substantial role, such as participating in associations and groups making political decisions) and lead their citizens to honor a reasonably just law for the Society of Peoples.<sup>232</sup> Well-ordered societies must satisfy a number of criteria: they must eschew aggressive aims as a means of achieving their objectives, honor basic human rights dealing with life, liberty, and freedom, and possess a system of law imposing bona fide moral duties and obligations as distinct from human rights. Moreover, they must have law and judges to uphold common ideas of justice.<sup>233</sup>

Rawls demonstrated how the law of peoples may be developed out of liberal ideas of justice similar to, but more general than, the idea of “justice as fairness” presented in *A Theory of Justice*.<sup>234</sup> Just as individuals in the first original position were shorn of knowledge about their attributes and placed behind a veil of ignorance to create principles for a just domestic society, the bargainers in the so-called second original position are representatives of

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227. See Russell Hittinger, Liberalism and the American Natural Law Tradition, 25 WAKE FOREST L. REV. 429, 443 (1990); see also Russell Hittinger, Varieties of Minimalist Natural Law Theories, 34 AM. J. OF JURIS. 133 (1989).

228. JOHN RAWLS, THE LAW OF PEOPLES 106 (2001).

229. *Id.*

230. RAWLS *supra* note 224.

231. *Id.* at 3.

232. RAWLS, *supra* note 228, at 106.

233. *Id.* at 3.

234. See *id.*

peoples who are shorn of knowledge about their people's resources, wealth, power, and the like. Behind the veil of ignorance, the representatives of peoples—not states, as states lack moral capacity—develop the principles of justice that will govern relations between them: “the law of peoples.”<sup>235</sup>

It should be noted at this juncture that there is a difference between John Rawls' theories of domestic and international justice. The principles of domestic distributive justice espoused by Rawls in *A Theory of Justice* are not applied to the international sphere. A pivotal reason for this is that the international community does not possess the basic institutions of a liberal democratic society necessary to institute and implement distributive justice. The machinery of government, consisting of a legislature that can make laws, an executive branch that implements such laws, and courts with compulsory jurisdiction that interpret and apply the laws of the state, does not exist on a global level. These factors were among the reasons that his book is titled “The Law of Peoples” rather than “the law of nations” or “the law of states.”<sup>236</sup>

Rawls emphasized the need for global order and stability over global distributive justice. Once the duty to assist burdened peoples is satisfied, there are no further requirements on economic distribution within Rawls' *The Law of Peoples*; inequalities across national borders are of no political concern as such. Individuals around the world may suffer greatly from bad luck, and they may be haunted by spiritual emptiness. The practical goal of *The Law of Peoples* is the elimination of the great evils of human history: unjust war and oppression, religious persecution, the denial of liberty of conscience, starvation and poverty, genocide, and mass murder. The limits of this ambition mean that there will be much in the world to which Rawls' political philosophy offers no solution.<sup>237</sup>

Rawls seeks to determine the principles of cooperation for “well-ordered peoples.” Rawls posits that non-ideal conditions cannot adequately be addressed unless principles of justice are determined for ideal conditions. Otherwise, it is impossible to know what kind of just society to aim to establish and the necessary means to do so.<sup>238</sup> A “realistic utopia,” as Rawls prefers to call his theory, is an aspiration that does not reflect the reality of international law and relations.<sup>239</sup>

Rawls emphasizes the crucial importance of peoples rather than states because of a people's capacity for “moral motives” that is lacking in the bureaucratic machinery of a state.<sup>240</sup> Noah Feldman correctly observes that a “people” for Rawls is a philosophical construct. It is an abstract

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235. *Id.*

236. *See* RAWLS, *supra* note 228.

237. Leif Wenar, *John Rawls*, in *THE STANFORD ENCYCLOPEDIA OF PHILOSOPHY* (2017), <https://plato.stanford.edu/entries/rawls/> [<https://perma.cc/M9H8-UZTY>].

238. RAWLS, *supra* note 224, at 3.

239. *Id.* at 6-7.

240. *Id.* at 197.

conception needed to work out principles of justice for a particular subject—in this case, relations among different, well-ordered liberal and “decent” societies.<sup>241</sup> The assumption that states lack moral motives is partially refuted by their acceptance of sustainable development. Nonetheless, Rawls remains trenchant when it comes to the application of sustainable development. Rawls is not talking then about a people regarded as an ethnic or religious group (e.g. Slavs, Jews, Kurds) who are not members of the same society. Rather, a “people” consists of members of the same well-ordered society who are united under, and whose relations are governed by, a political constitution and basic structure. Comprised of members of a well-ordered society, a people is envisioned as having effective political control over a territory that its members govern and within which their basic social institutions take root. In contrast to a state, however, a people possesses a “moral nature” that stems from the effective sense of justice for its individual members. A people’s members may have common sympathies for any number of reasons, including shared language, ethnic roots, or religion. The most basic reason for members’ common sympathies, however, lies in their shared history as members of the same society and consequent shared conception of justice and the common good.<sup>242</sup>

Rawls’s concept of “peoples” has been criticized. Among his more cogent critics, Pogge<sup>243</sup> and Nussbaum<sup>244</sup> question the validity of the distinction between peoples and states and the difficulties of defining peoples. They claim their criticisms assume importance in any attempt to realize the “society of peoples” Rawls envisions as his realistic utopia. Such criticisms have actually been anticipated by Rawls, who pointed out that he eschewed the “state” as a polity because of its historical Hobbesian connotations in “realist” international political theory, which suggests that the power of states can be limited only by the states, and not by moral or legal constraints.<sup>245</sup>

Is it possible to place Rawls within a framework of faith and reason? To begin, Rawls’ theory of justice has deep roots in Western philosophy. He relies on Kant (1724–1804), who argued that reason is the source of morality, and more than anyone else, founded modern philosophy in Europe.<sup>246</sup> This tradition established the primacy of reason over revelation in philosophy. Rawls also relies on Locke (1632–1704).<sup>247</sup> Locke used reason to speculate on how and why governments first formed in order to identify natural

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241. Noah Feldman, *Cosmopolitan Law?*, 116 YALE L. J. 1022, 1038 (2007).

242. *Id.*

243. Thomas W. Pogge, *The Incoherence Between Rawls’s Theories of Justice*, 72 FORDHAM L. REV. 1739, 1743 (2004).

244. M.C. NUSSBAUM, FRONTIERS OF JUSTICE: DISABILITIES, NATIONALITY, SPECIES MEMBERSHIP 236–44 (2006).

245. RAWLS, *supra* note 228, at 3–4.

246. RAWLS, *supra* note 224, at 10.

247. *Id.*



rights.<sup>248</sup> Rawls sees himself as defending this tradition against another Western philosophy—that of utilitarianism,<sup>249</sup> according to which governments should pursue the greater societal good in all cases.

There is a long tradition in the Western culture of a substantive view of human goodness revolving around the notion of “virtues” in liberal political theory. Rawls’ idea of “justice as fairness” presented in *A Theory of Justice* is a virtue. The main schools in liberal political theory, such as contractualism and utilitarianism, rely on a weak or minimal theory of the good, which is of little or no help to individual reflection on the classical Socratic question about how one should live. These liberal political theorists provide no help either to individuals in making major life choices or to nation-states seeking guidance in making public policy decisions.<sup>250</sup>

However, there is a common meeting ground between the virtue-ethics<sup>251</sup> embedded in a secular political theory such as liberalism on the other hand, and the virtues found in a religiously inspired conception such as natural law. Nussbaum identifies a narrow common ground shared by all defenders of virtue-ethics, liberals and natural lawyers alike, who subscribe to an inner moral code and accepted patterns of motive, emotion, and reasoning in navigating a moral life.<sup>252</sup>

If so, it is possible to perceive some confluence between natural law and the conclusions of Rawls. Natural law concurs in attributing profound importance to reason. Aquinas defines a law as “a certain dictate of reason for the Common Good, made by him who has the care of the community and promulgated.”<sup>253</sup> And natural law is said to be “the rational creature’s share of the Eternal Reason.”<sup>254</sup> This article, however, does not attempt the impossible task of re-baptizing Rawls as a natural lawyer; Rawls explicitly located his theory of justice on public reason and not natural law.<sup>255</sup> It is

248. JOHN LOCKE, THE SECOND TREATISE OF CIVIL GOVERNMENT, Ch. VI, § 57, at 34 (Richard H. Cox ed., Harlan Davidson, Inc. 1982) (1690) (“The law, that was to govern *Adam*, was the same that was to govern all his posterity, *the law of reason*.”).

249. KATARZYNA DE LAZARI-RADEK & PETER SINGER, UTILITARIANISM: A VERY SHORT INTRODUCTION xix (2017).

250. Michele Mangini, *Virtues, Perfectionism and Natural Law*, 3 EUROPEAN J. LEGAL STUD. 101, 103–04 (2010).

251. Virtue ethics emphasizes the virtues, or moral character, in contrast to other approaches that emphasize duties or rules (deontology) or that emphasize the consequences of actions (consequentialism). Rosalind Hursthouse & Glen Pettigrove, *Virtue Ethics*, in STANFORD ENCYC. PHIL. (Edward N. Zalta, ed., 2018), <https://plato.stanford.edu/archives/win2018/entries/ethics-virtue/> [<https://perma.cc/PLA7-BFLY>].

252. Martha C. Nussbaum, *Virtue Ethics: A Misleading Category*, 3 J. ETHICS 163, 170 (1999).

253. ST. THOMAS AQUINAS, TREATISE ON LAW: SUMMA THEOLOGICA, QUESTIONS 90–97, Question 90, Article 4, at 10–11 (Regnery 1996) (1274).

254. *Id.* at Question 91, Article 2, at 160.

255. The ideal of public reason, made prominent by John Rawls, highlights the proper role of religious arguments in a politically liberal society. In particular, Rawls’s theory of public reason requires citizens and public officials to refrain from appealing to comprehensive religious and philosophical doctrines—such as natural law—in public deliberation on matters

possible, however, to situate him within a tradition of reason that shares common ground with natural lawyers, by predicating law on concepts of justice based on values and virtues.

## B. Islamic Jurisprudence

Islam, like Christianity and Judaism, is an Abrahamic religion. Jurisprudence in the Islamic tradition has a somewhat different, but not entirely dissimilar, rendition to that of Western jurisprudence. The Arabic term commonly translated as jurisprudence, *usul al-fiqh* (أصول الفقه), is not a literal translation. A more nuanced translation requires breaking down the Arabic and attempting to understand the term as an Arabic speaker would. The first word of the term, *usul*, in a general sense, means foundations. Its specific meaning varies depending on context—for instance, it signifies “basic principles” when used in the context of science, and it means “assets” in the context of finance. It implies something which is firmly rooted, established, or of noble origin.<sup>256</sup> The second part of the term, *fiqh*, in its most general sense signifies understanding, comprehension, knowledge, and insight.<sup>257</sup> It implies what a prudent person would discern from the obvious. However, in the technical sense, *fiqh* signifies understanding of Islamic law. Taken together, in the general sense, the term *usul al-fiqh* means the foundations of understanding. In the specific sense, it refers to the foundations of understanding Islamic law. There are four of these: the *Quran* (القرآن)—the holy book of Islam; *Sunnah* (سنة)—the record of the teachings, deeds, and sayings of Muhammad; *Qiyas* (قياس)—the process of deductive analogy; and *Ijma’* (إجماع)—the consensus of Islamic scholars. Of these, the Quran and Sunnah are primary sources. These two are primary because they represent divine law as revealed to Muhammad, whereas the other two are derived from human understanding of that law.

There is a strong parallel here to Aquinas’s conceptions of law. The revealed divine law of the Quran and Sunnah may be equated with Aquinas’s concept of natural law. *Qiyas* and *Ijma’* seem remarkably close to Aquinas’s natural law, discerned through human reason that is able to differentiate between good and evil. Simply put, in both the Islamic tradition and the natural law tradition there is an eternal law, discovered through reasoning, which is the ultimate source of all law. Indeed, one of the names of Allah is *hakim* (حكيم)—most commonly translated as “the wise.” This word is also the title used for judges, and it is closely related to the words signifying the authority to determine what is right and what is wrong.<sup>258</sup>

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of basic justice and constitutional essentials. JOHN RAWLS, *POLITICAL LIBERALISM* xxiv–xxvi, 36 (1993); RAWLS, *supra* note 224, at 55–56, 132–52.

256. HANS WEHR, *A DICTIONARY OF MODERN WRITTEN ARABIC* 19 (J. Milton Cowan ed., 3d ed. 1993).

257. *Id.*

258. *Id.*

### C. Buddhist Jurisprudence

Recent studies have challenged the popular conception of Buddhism as an apolitical religion without implication for law.<sup>259</sup> A notable example of this is demonstrated by the rule of Emperor Ashoka, the Mauryan king of India from 269 BCE to 232 BCE. His vast empire extended from Iran in the west to Bangladesh in the east and to all of present-day India except for Kerala and Tamil Nadu. His empire was multiracial, multireligious, and multicultural; it included Greeks, the Kambojas, the Nabhakas, the Nabhapamkites, the Bhojas, the Pitinikas, the Andhras, and the Palidas professing differing faiths. Ashoka governed this vast empire according to principles of justice rooted in Buddhism, which he enshrined in a collection of thirty-three inscriptions found on the Pillars of Ashoka, as well as on boulders and cave walls throughout his empire.<sup>260</sup>

The contents of Asoka's edicts confirm that he was one of the greatest rulers of the world.<sup>261</sup> His edicts differentiated between binding state law and aspirational private or individual morality. In some respects, this differentiation can be equated to the distinction that legal positivism makes between what is law and what ought to be law, with Buddhist precepts replacing the natural law concepts of positivism. However, from a more practical point of view, the edicts of Ashoka embody the political reality of ruling a heterogeneous society: rule by consent requires laws that appeal to a universal sense of justice.

Ashoka derived his laws from Buddhist principles and was careful to distinguish the edicts of the state from private morality and behavior.<sup>262</sup> His edicts, or laws, as distinct from his exhortations persuading his subjects to behave differently, were binding on all the people. These edicts were not based on his whim or command as an Emperor. Instead, Ashoka's edicts and laws were founded and justified on Buddhist principles.<sup>263</sup> From one perspective, it is a kind of non-Thomian natural law. But, as enacted by Ashoka, it is Buddhist law attributable to principles of Buddhism. Regardless of how they are characterized, Ashoka's edicts resonated in justice.

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259. See REBECCA REDWOOD FRENCH AND MARK A. NATHAN, *BUDDHISM AND LAW: AN INTRODUCTION* (Rebecca Redwood French & Mark A. Nathan eds., 2014).

260. VEN. S. DHAMMIKA, *THE EDICTS OF KING ASHOKA* (1994), <https://www.cs.colostate.edu/~malaiya/ashoka.html> [<https://perma.cc/4GE7-J6UW>].

261. H.G. WELLS, *THE OUTLINE OF HISTORY* 385–87 (1940).

262. Ashoka's exhortations on private morality recommended and exhorted individuals to practice and become imbued with the Buddhist values of compassion, moderation, tolerance and respect for all life. The individual morality that Asoka hoped to foster included respect (*susrusa*) towards parents, elders, teachers, friends, servants, ascetics and brahmins—behavior that accords with the advice given to Sigala by the Buddha in *Digha Nikaya*, Discourse No. 31). He encouraged generosity (*dana*) to the poor (*kapana valaka*), to ascetics and brahmins, and to friends and relatives. DHAMMIKA, *supra* note 260.

263. DHAMMIKA, *supra* note 260.

Ashoka's state duties, which were laid out by the edicts and formed the law and administration of his empire, were directed toward creating a more just and spiritually inclined society. The protection of all religions, their promotion, and the fostering of harmony between them, were also seen as duties of the state.<sup>264</sup> The judicial system was reformed in order to make it more fair, less harsh, and less open to abuse. Those sentenced to death were given a stay of execution to prepare appeals, and regular amnesties were given to prisoners. State resources were used for useful public works like the importation and cultivation of medical herbs, the building of rest houses, the digging of wells at regular intervals along main roads, and the planting of fruit and shade trees.<sup>265</sup>

Under these edicts, the state had a responsibility not just to protect and promote the welfare of its people, but also its wildlife. Hunting certain species of wild animals was banned, forest and wildlife reserves were established, and cruelty to domestic and wild animals was prohibited. The Ashokan state also gave up the predatory foreign policy that had characterized the prior Mauryan empire and replaced it with a policy of peaceful coexistence.<sup>266</sup>

#### D. Confucian Jurisprudence

Confucianism is an all-encompassing way of thinking and living, propagated by Chinese philosopher Confucius in the sixth to fifth century BCE. It is a worldview regarded sometimes as a philosophy and sometimes as a religion, and it has been followed by the Chinese people for more than two millennia. Confucianism spread to other East Asian countries under the influence of Chinese culture and has greatly influenced spiritual and political life. The theory and practice of Confucianism have undeniably shaped the systems of government, society, education, and family in East Asia. Commentators have pointed out that East Asians may profess themselves to be Shintōists, Daoists, Buddhists, Muslims, or Christians, but regardless of their religious affiliations, seldom do they cease to be Confucians.<sup>267</sup>

The *Lunyu* (*Analects*), the most revered sacred scripture in the Confucian tradition, was most likely compiled by generations of Confucius' disciples.<sup>268</sup> Similar to the Platonic dialogues that embody Socratic pedagogy, the *Analects* captures the Confucian spirit in form and content.<sup>269</sup>

The Confucian conception of law is embodied by the Second Analect:

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264. *Id.*

265. *Id.*

266. *Id.*

267. Tu Weiming, *Confucianism*, ENCYC. BRITANNICA ONLINE, <http://www.britannica.com/topic/Confucianism> [https://perma.cc/3933-CN2P].

268. *Id.*

269. *Id.*

The Master said: “If you govern with the power of your virtue, you will be like the North Star . . . . If you govern the people legalistically and control them by punishment, they will avoid crime, but have no personal sense of shame. If you govern them by means of virtue and control them with propriety, they will gain their own sense of shame, and thus correct themselves.”<sup>270</sup>

Virtue (self-improvement) is the ultimate goal of laws in Confucian jurisprudential thought. The opposition to this school of thought was legalism, the school of Chinese philosophy that attained prominence during the turbulent Warring States era (475–221 BCE) and, through the influence of the philosophers Shang Yang, Li Si, and Hanfeizi, formed the ideological basis of China’s first imperial dynasty, the Qin (221–207 BCE).<sup>271</sup>

Legalist philosophers abided by three main precepts: the strict application of widely publicized laws (*fa*), the application of management techniques (*shu*) such as accountability (*xingming*) and “showing nothing” (*wuxian*), and the manipulation of political purchase (*shi*). The legalists believed that political institutions should be modeled in response to the realities of human behavior, primarily in recognition of their belief that human beings are inherently short-sighted and selfish. Thus, the legalists believed that social harmony could only be achieved through strong state control and absolute obedience to authority. The legalists advocated for a government that comprised of a system of laws that rigidly prescribed punishments and rewards for behaviors. The ultimate goal of legalists was to increase the power of the ruler and the state. The brutal implementation of this policy by the authoritarian Qin dynasty led to that dynasty’s overthrow, and it ultimately cause the widespread discrediting of legalist philosophy in China.<sup>272</sup>

The short-lived dictatorship of the Qin marked a brief triumph of legalism. In the early years of the Western Han (206 BCE–25 CE), however, the legalist practice of absolute power of the emperor, complete subjugation of the peripheral states to the central government, total uniformity of thought, and ruthless enforcement of law were replaced by the Daoist practice of reconciliation and noninterference. This practice is commonly known in history as the Huang-Lao method, referring to the art of rulership attributed to the Yellow Emperor (Huangdi) and the mysterious founder of Daoism, Lao-Tzu. Although a few Confucian thinkers, such as Lu Jia and Jia Yi, made

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270. THE ANALECTS OF CONFUCIUS, RESOURCES FOR EAST ASIAN LANGUAGE AND THOUGHT <http://www.acmuller.net/con-dao/analects.html> (A. Charles Muller trans., rev. ed. 2018) [<https://perma.cc/CD8K-JBDX>].

271. *Legalism*, ENCYC. BRITANNICA ONLINE, <http://www.britannica.com/topic/Legalism> [<https://perma.cc/Q3SY-LZWG>].

272. *Id.*

important policy recommendations, Confucianism, before the emergence of Dong Zhongshu (c. 179–c. 104 BCE), was not particularly influential.<sup>273</sup>

Nonetheless, the gradual Confucianization of Han politics began soon after the founding of the dynasty.<sup>274</sup> Although Confucian thought accepted the social hierarchy of its time, this existed side-by-side with the view that the basic tasks of government were to relieve people's suffering<sup>275</sup> and promote economic well-being.<sup>276</sup> The basic ideas embodied in these views are not foreign to the other jurisprudential lineages discussed. Unique to Confucian thought (at the time), however, was the idea that these basic tasks were to be achieved by ensuring that the government was run by the virtuous, who obtained their position based on merit rather than birth.<sup>277</sup> This is the origin of the traditional Chinese competitive examination system for civil service.

### CONCLUSION

We are now able to merge some of our transitional conclusions into final conclusions. First, the inability to access energy both causes poverty and disables impoverished people from developing. The connection between energy and poverty is fundamental to the discourse on sustainable development. Second, this article has argued, in the traditions of Jeremy Bentham, that answers to the challenge posed by energy poverty should be based on law and justice. In discussing the EP and the international response based on SD, this article has argued that SD is rooted and grounded in justice. It has further argued that SD expresses some of the general principles of law referred to in Article 38 (1) (c) of the Statute of the International Court of Justice. Third, this article has attempted to demonstrate that global jurisprudential lineages of justice are intertwined with common strands of faith and reason, traversing the variegated cultural and religious traditions of the world.

It is unfortunate that Western theorizing on global justice is found within political and moral philosophy and not what Steven Ratner calls the “thin justice” of international law or jurisprudence.<sup>278</sup> Ratner has revealed the unbridged chasm between the jurisprudence of international law and philosophical ethics.<sup>279</sup> In a world made up of sovereign states governed by international law and political and moral philosophers who have systematically probed issues of global justice, all have inexplicably managed

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273. Weiming, *supra* note 267.

274. *Id.*

275. MENCIUS, BOOK I, B:5 65–66 (D.C. Lau trans., 1970) (c. 300 B.C.E.).

276. CONFUCIUS, *The Analects 13:9*, in *THE ANALECTS OF CONFUCIUS: A PHILOSOPHICAL TRANSLATION* 164 (Roger T. Ames & Henry Rosemont, Jr. trans., Ballantine Books 1998).

277. 2 XUNZI, *On the Regulations of a King*, ch. 9, ¶¶ 9.1, 9.4, in *XUNZI: A TRANSLATION AND STUDY OF THE COMPLETE WORKS* 94–95, 97 (John Knoblock trans., 1990).

278. STEVEN RATNER, *THE THIN JUSTICE OF INTERNATIONAL LAW* 1–2, 27–28 (2015).

279. *Id.* at 1–2, 20–41.

to avoid the implications of their theorizing on international law. Theories of international justice and international ethics remain speculative and unrealistic ideas unless they are anchored within the existing international legal order. The manner in which political and moral philosophers have generally ignored the premises of international law and governance is both puzzling and disconcerting.

For their part, international lawyers who study the existing international order have been equally oblivious to the moral foundations of justice rooted in philosophy. Moral philosophy and justice have been treated as falling outside the compass of law and are generally overlooked.<sup>280</sup> Contemporary international law needs to fill in the lacunae between law and justice. This article is a modest attempt to bridge parts of this frustrating chasm.

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280. *Id.*