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## Waste Size: The Skinny On The Environmental Costs Of The Fashion Industry

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# WASTE SIZE: THE SKINNY ON THE ENVIRONMENTAL COSTS OF THE FASHION INDUSTRY

ELISHA TEIBEL\*

*The best way to make a contribution in fashion is to promote the idea that a fundamental interest in preserving the environment is itself fashionable.*

—Giorgio Armani<sup>1</sup>

## INTRODUCTION

The fashion industry<sup>2</sup> is a web of complex global markets currently valued at \$3 trillion<sup>3</sup> that employs somewhere around sixty million people worldwide<sup>4</sup> and is estimated to be one of the most labor-intensive industries on the planet.<sup>5</sup> Over the past couple of decades, the industry has evolved into a highly fragmented sector with complicated supply chains and completely unstandardized production practices, which vary by factory and by country.<sup>6</sup> The most significant facet of the fashion trade is

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<sup>1</sup> Stella McCartney, *The wisdom of King Giorgio*, THE INDEPENDENT (May 15, 2006), <http://www.independent.co.uk/news/people/profiles/the-wisdom-of-king-giorgio-478350.html> [<https://perma.cc/9GB7-TKDX>].

<sup>2</sup> To be clear, “the fashion industry” is composed of many more sectors that are beyond the scope of this Note, such as footwear, jewelry, makeup, etc. While each of these sectors certainly has its own environmental footprint as well as its own set of issues to tackle, I will only focus on the impacts of the apparel industry in this Note. “The fashion industry,” for purposes of this Note, is meant to refer to the clothing sector.

<sup>3</sup> *Global fashion industry statistics—International apparel*, FASHIONUNITED (2015), <https://fashionunited.com/global-fashion-industry-statistics> [<https://perma.cc/YYW2-X8KM>].

<sup>4</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, PULSE OF THE FASHION INDUSTRY 2 (2017), [https://globalfashionagenda.com/wp-content/uploads/2017/05/Pulse-of-the-Fashion-Industry\\_2017.pdf](https://globalfashionagenda.com/wp-content/uploads/2017/05/Pulse-of-the-Fashion-Industry_2017.pdf) [<https://perma.cc/4KHL-PLRG>].

<sup>5</sup> SARAH DITTY, IT’S TIME FOR A FASHION REVOLUTION: WHITE PAPER 7 (2015), [http://fashionrevolution.org/wp-content/uploads/2015/11/FashRev\\_Whitepaper\\_Dec2015\\_screen.pdf](http://fashionrevolution.org/wp-content/uploads/2015/11/FashRev_Whitepaper_Dec2015_screen.pdf) [<https://perma.cc/VKB5-Y8LM>].

<sup>6</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 8.

the clothing and textile industry.<sup>7</sup> The current total value of the clothing and textiles trade is estimated at \$726 billion<sup>8</sup> and a staggering 150 billion new garments are created a year.<sup>9</sup>

Trade liberalization in this particular industry only began after the revocation of the Multifibre Arrangement (“MFA”) in 2005.<sup>10</sup> As a result, textile and clothing production has shifted dramatically to the lowest-cost option: developing countries, which produce almost three-quarters of the world’s apparel exports.<sup>11</sup> While fashion undeniably sustains the global economy, its unsustainable production methods come at high environmental and human costs—costs that society can no longer afford to overlook or conceal. As an industry built on constant, cyclic change and dependent

<sup>7</sup> The clothing industry and the textile industry are inescapably intertwined, as clothing production is reliant on the production of textiles and fabric. The “clothing industry” is meant to refer to the industry generally (encompassing more than just textile industry), while the “textile industry” focuses on the generation of textiles and materials. However, for the sake of argument, and to avoid unnecessary complexity, I will treat these two industries as one. I will also interchangeably refer to clothing production as “the apparel industry,” “garment production,” and the like.

<sup>8</sup> FASHIONUNITED, *supra* note 3.

<sup>9</sup> Maxine Bédat, *Our love of cheap clothing has a hidden cost—it’s time for a fashion revolution*, WORLD ECO. F. (Apr. 22, 2016), <https://www.weforum.org/agenda/2016/04/our-love-of-cheap-clothing-has-a-hidden-cost-it-s-time-the-fashion-industry-changed/> [<https://perma.cc/Z4A4-B3ZP>].

<sup>10</sup> *Textiles: back in the mainstream*, WORLD TRADE ORG., [https://www.wto.org/english/thewto\\_e/whatis\\_e/tif\\_e/agrm5\\_e.htm](https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm5_e.htm) [<https://perma.cc/73V9-HEST>] (last visited Jan. 11, 2019). Since 1974, the international textile and clothing trade was regulated by the Multifibre Arrangement (“MFA”), which placed quantity restrictions on imports from low-cost, overseas manufacturers to preserve the health of the domestic industries of developed countries. HILDEGUNN KYVIK NORDÅS, *THE GLOBAL TEXTILE AND CLOTHING INDUSTRY POST THE AGREEMENT ON TEXTILES AND CLOTHING—DISCUSSION PAPER NO. 5 17* (2004), [https://www.wto.org/english/res\\_e/booksp\\_e/discussion\\_papers5\\_e.pdf](https://www.wto.org/english/res_e/booksp_e/discussion_papers5_e.pdf) [<https://perma.cc/6N K6-JYG4>]. The revocation of the MFA (and the end of the ten-year integration period to bring the industry into the multilateral trading system) caused a dislocation in production and severe economic effects for countries that had become dependent on the “farming out” practices of countries restricted by the quotas. Paul Gill, *Economy of Scale*, in *SUSTAINABLE FASHION, WHY NOW?: A CONVERSATION ABOUT ISSUES, PRACTICES, AND POSSIBILITIES* 171 (Janet Hethorn & Connie Ulasewicz eds., 2008) [hereinafter *SUSTAINABLE FASHION, WHY NOW?*]. But it also brought enormous gains for others. INFODEV, *THE GLOBAL TEXTILE AND GARMENTS INDUSTRY: THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTS)*, in *EXPLOITING THE VALUE CHAIN 1* (2008). Companies are now free to import as much as they choose from whatever countries they wish. *See id.* at 5. This has created a race to the bottom, specifically in China, Bangladesh, and Vietnam, where unethically low labor costs and loosely enforced environmental regulations attract business. *See* ANIKA KOZŁOWSKI ET AL., *ENVIRONMENTAL IMPACTS IN THE FASHION INDUSTRY 5* (2012); WORLD TRADE ORGANIZATION, *WORLD TRADE ORGANIZATION STATISTICAL REVIEW 2017 35* (2017).

<sup>11</sup> INFODEV, *supra* note 10, at 6.

on societal fluctuations of what it means to be stylish, the fashion industry is a key player in the vicious cycle of waste and resource depletion.<sup>12</sup>

The fashion industry is reputedly the second-largest polluter in the world, next only to the oil industry.<sup>13</sup> All products that are manufactured have some kind of adverse environmental effects associated with their creation, but the effects of clothing and textile production in particular are severe.<sup>14</sup> Apparel production is an extremely complicated process that spans a variety of stages, encompassing fiber cultivation, textile and fabric production, processing, garment creation, consumer usage, and eventual disposal.<sup>15</sup> The clothing supply chain requires utilizing many natural resources, chemical processes, and enormous amounts of energy to create and transport the garments ultimately purchased in the retail store.<sup>16</sup> For example, more than a half-trillion gallons of freshwater are used annually to dye textiles.<sup>17</sup> Five percent of global greenhouse gases are emitted by this industry, which is almost the equivalent of the emissions of the entire aviation sector.<sup>18</sup> As the demand for clothing only increases with time, these impacts will be amplified.<sup>19</sup> But the environmental effects

<sup>12</sup> SANDY BLACK, *ECO-CHIC: THE FASHION PARADOX* 17 (2008).

<sup>13</sup> Nancy Szokan, *The fashion industry tries to take responsibility for its pollution*, WASH. POST (June 30, 2016), [https://www.washingtonpost.com/national/health-science/the-fashion-industry-tries-to-take-responsibility-for-its-pollution/2016/06/30/11706fa6-3e15-11e6-80bc-d06711fd2125\\_story.html?utm\\_term=.75b96cc94395](https://www.washingtonpost.com/national/health-science/the-fashion-industry-tries-to-take-responsibility-for-its-pollution/2016/06/30/11706fa6-3e15-11e6-80bc-d06711fd2125_story.html?utm_term=.75b96cc94395) [<https://perma.cc/D4ML-BND4>]; Glynis Sweeney, *Fast Fashion Is the Second Dirtiest Industry in the World, Next to Big Oil*, ECO WATCH (Aug. 17, 2015), <https://www.ecowatch.com/fast-fashion-is-the-second-dirtiest-in-dustry-in-the-world-next-to-big--1882083445.html> [<https://perma.cc/32RW-GEQV>]; James Conca, *Making Climate Change Fashionable—The Garment Industry Takes On Global Warming*, FORBES (Dec. 3, 2015), <https://www.forbes.com/sites/jamesconca/2015/12/03/making-climate-change-fashionable-the-garment-industry-takes-on-global-warming/#598a9a6979e4> [<https://perma.cc/A6Z9-6E54>].

<sup>14</sup> See Shanthi Radhakrishnan, *The Sustainable Apparel Coalition and the Higg Index*, in *ROADMAP TO SUSTAINABLE TEXTILES AND CLOTHING: REGULATORY ASPECTS AND SUSTAINABILITY STANDARDS OF TEXTILES AND THE CLOTHING SUPPLY CHAIN* 23 (Subramanian Senthilkannan Muthu ed., 2015).

<sup>15</sup> SUBRAMANIAN SENTHILKANNAN MUTHU, *ASSESSING THE ENVIRONMENTAL IMPACT OF TEXTILES AND THE CLOTHING SUPPLY CHAIN* 3 (2014).

<sup>16</sup> Renske Koster, *Can the fashion industry calculate its way to sustainability?—The potential of LCA*, FASHIONUNITED (June 19, 2017), <https://fashionunited.uk/news/fashion/can-the-fashion-industry-calculate-its-way-to-sustainability-the-potential-of-lca/2017061924879> [<https://perma.cc/6KEW-37GN>]. See *infra* notes 38–53 for an in-depth analysis of the environmental impacts of each stage of the clothing supply chain (clothing life cycle).

<sup>17</sup> Sweeney, *supra* note 13.

<sup>18</sup> Whitney Bauck, *The Fashion Industry Emits As Much Greenhouse Gas As All Of Russia*, FASHIONISTA (Sept. 22, 2017), <https://fashionista.com/2017/09/fashion-industry-greenhouse-gas-climate-change-sustainability> [<https://perma.cc/UG2Q-KSYJ>].

<sup>19</sup> See GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 8.

do not end there. While much of the more recent focus has been on the impacts of manufacturing alone, consumer usage (dry cleaning, washing, drying, and ironing) has been found to have the most negative environmental impacts.<sup>20</sup> Moreover, enormous amounts of apparel waste caused by overproduction and overconsumption pose significant waste management and disposal problems.<sup>21</sup> As more attention is drawn to the havoc wreaked by this industry, the general consensus is simple: more care needs to be taken to safeguard the future of our planet.<sup>22</sup> The most important question is—how should this goal be achieved?

To many, the answer comes in the form of somewhat of an enigma—the concept of sustainable fashion. Sustainable development was defined by the United Nations in its 1987 *Report of the World Commission on Environment and Development: Our Common Future*:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. . . . [It] is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development; and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.<sup>23</sup>

It is largely agreed that implementing “sustainability” itself as a goal is not “a single-frame approach.”<sup>24</sup> Thus, there is not a standardized definition of “sustainable fashion” to apply to the fashion industry as a whole, which creates confusion among industry members and consumers alike.<sup>25</sup> But in a general sense, sustainable fashion is a combination of transparency, stewardship, responsible production and consumption, industry

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<sup>20</sup> MUTHU, *supra* note 15, at 22; KOZLOWSKI ET AL., *supra* note 10, at 8. See also KATE FLETCHER, SUSTAINABLE FASHION AND TEXTILES: DESIGN JOURNEYS 75–77 (2008).

<sup>21</sup> See GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 12.

<sup>22</sup> *Id.* at 3–4.

<sup>23</sup> Report of the World Commission on Environment and Development: Our Common Future, Ch. 2: Towards Sustainable Development, U.N. Doc. A/42/427, annex (1987).

<sup>24</sup> FLETCHER, *supra* note 20, at 5. See also Report of the World Commission on Environment and Development: Our Common Future, *supra* note 23 (“Interpretations will vary, but must share certain general features . . .”).

<sup>25</sup> Sue Thomas, *From Green Blur to Eco-fashion: Fashioning an Eco-Lexicon*, 12-4 FASHION THEORY 525, 528 (2008). See KOZLOWSKI ET AL., *supra* note 10, at 5; Vanessa Friedman, *Sustainable fashion: what does green mean?*, FINANCIAL TIMES (Feb. 5, 2010), <https://www.ft.com/content/2b27447e-11e4-11df-b6e3-00144feab49a> [<https://perma.cc/E8DJ-F897>].

innovation, and mindfulness.<sup>26</sup> It is a mantra that applies to all stakeholders—fashion companies, factories, policymakers, consumers—to dispense with the “take, make, waste” mentality that currently pervades production and consumption models and instead, collaborate to engage in behavior that changes the status quo.<sup>27</sup> Such collaboration is dependent on the understanding that we are all stakeholders in the venture that is our global future.

The current “sustainability pulse” of the fashion industry is only thirty-two out of one hundred, according to the Copenhagen Fashion Summit’s 2017 report *Pulse of the Fashion Industry*.<sup>28</sup> Created by the Boston Consulting Group and Global Fashion Agenda, the report highlights the major shortfalls of the industry by compiling data to express the urgency of addressing the industry’s environmental, social, and ethical impacts.<sup>29</sup>

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<sup>26</sup> See Janet Hethorn & Connie Ulasewicz, *Introduction*, in SUSTAINABLE FASHION, WHY NOW?, *supra* note 10, at xviii; KOZLOWSKI ET AL., *supra* note 10, at 3; Thomas, *supra* note 25, at 536; JENNIFER FARLEY GORDON & COLLEEN HILL, SUSTAINABLE FASHION: PAST, PRESENT, AND FUTURE XV (2015); Miguel Angel Gardetti & Ana Laura Torres, *Introduction*, in SUSTAINABILITY IN FASHION AND TEXTILES: VALUES, DESIGN, PRODUCTION AND CONSUMPTION 6 (Miguel Angel Gardetti & Ana Laura Torres eds., 2013).

<sup>27</sup> Jennifer Whitty, *Operating in the third space: The Space Between* 32, Conference Paper for Circular Transitions: A Mistra Future Fashion Conference on Textile Design and the Circular Economy, University of the Arts London (2016).

<sup>28</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 2. The Copenhagen Fashion Summit is “the world’s leading business event on sustainability in fashion.” *About*, COPENHAGEN FASHION SUMMIT, <https://copenhagenfashionsummit.com/about> [<http://perma.cc/HPE2-W49L>] (last visited Jan. 11, 2019). As such, it brings together great minds from all sectors, including retail, technology, engineering, and academia, to discuss the sustainability issues the fashion industry faces and plan for a future where fashion does not have to be at the expense of the planet. See generally *Copenhagen Fashion Summit*, VIMEO, <https://vimeo.com/copenhagenfashionsummit> [<https://perma.cc/F7EE-CJYH>] (last visited Jan. 11, 2019). The Summit is sponsored by Global Fashion Agenda (“GFA”), a global, collaborative group of stakeholders within the industry, founded just in 2016 that works to “mobilise the international fashion industry and community to transform the way we produce and consume fashion, for a world beyond next season.” GLOBAL FASHION AGENDA, GOOGLE, <https://www.google.com/culturalinstitute/beta/partner/copenhagen-fashion-summit> [<https://perma.cc/4ZP2-WEMN>] (last visited Jan. 11, 2019). *Pulse of the Fashion Industry* is the GFA’s premier report of the overall state of the fashion industry. *Pulse of the Fashion Industry 2017*, GLOBAL FASHION AGENDA, <http://www.globalfashionagenda.com/publications/#pulseofthefashionindustryreport> [<https://perma.cc/3QUB-W4JC>] (last visited Jan. 11, 2019). GFA also works with fashion industry leaders to facilitate commitment and action by the fashion industry on sustainability. *Global Fashion Agenda at Shanghai Fashion Week*, GLOBAL FASHION AGENDA, <http://www.globalfashionagenda.com/global-fashion-agenda/> [<https://perma.cc/34VD-9FPP>] (last visited Jan 11, 2019).

<sup>29</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 3. The “pulse score” is modeled on the Sustainable Apparel Coalition’s (“SAC”) Higg Index and complemented by interviews and surveys from different market segments within the industry, ranging from premium and luxury segments to mid-size and low price-point

The 2017 *Pulse* report makes a stark plea. It encourages all stakeholders that the time is now to develop effective solutions for the present and for the future.<sup>30</sup> As one participant of the project noted, “[s]ustainability is no longer optional [sic] it is a must.”<sup>31</sup> To preserve the health of our world, society cannot allow this industry to continue “business as usual.”<sup>32</sup> The sustainability “pulse” is unfortunately one of the few standardized methods in existence to quantify the actual environmental disruption caused by the fashion industry.<sup>33</sup> This lack of data and transparency, coupled with the rise of ethical consumption and a demand among consumers for information, has exposed the fashion industry’s dire need for supply chain reform.<sup>34</sup>

In the past decade, many stakeholders—actors from within the industry, non-governmental organizations, consumers, and governments—have come together to reconceptualize the inner workings of an industry that shows no signs of slowing down.<sup>35</sup> It is projected that by 2030, 8.5 billion people will require clothing.<sup>36</sup> Yet, it is still challenging to calculate an accurate representation of the true environmental footprint of apparel and textile production when supply chains are globalized, decentralized, and inconsistently regulated.<sup>37</sup> Therefore, as the demand for

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firms. *Id.* at 28–30. The SAC was officially established in 2010, beginning as a partnership between Patagonia and Walmart. *Our Origins*, SUSTAINABLE APPAREL COALITION, <https://apparelcoalition.org/origins/> [<https://perma.cc/3A24-9D5W>] (last visited Jan. 11, 2019). Today, the non-profit “lead[s] the apparel industry toward a shared vision of sustainability built upon a common approach for evaluating sustainability performance.” Radhakrishnan, *supra* note 14, at 23. Composed of 212 members (academics, governments, brands, manufacturers, and more), the SAC is committed to “full-circle collaboration” to generate transparency and industry transformation to address the deeply concerning issues facing the apparel industry. *Collaboration & Impact*, SUSTAINABLE APPAREL COALITION, <https://apparelcoalition.org/collaboration-impact/> [<https://perma.cc/QU46-5CS5>] (last visited Jan. 11, 2019).

<sup>30</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 4.

<sup>31</sup> *Id.* at 36.

<sup>32</sup> FLETCHER, *supra* note 20, at XII.

<sup>33</sup> The SAC’s Higg Index, which the pulse score is modeled on, is one of the diagnostic methods utilized by the apparel industry to calculate the environmental impacts occurring within the supply chain. Radhakrishnan, *supra* note 14, at 33–36. The Higg Index is a suite of self-assessment tools designed to offer a standardized sustainability assessment and to foster transparency within the apparel industry, which is severely lacking. *The Higg Index*, SUSTAINABLE APPAREL COALITION, <https://apparelcoalition.org/the-higg-index/> [<https://perma.cc/TT3U-4R2W>] (last visited Jan. 11, 2019).

<sup>34</sup> See Jochen Strähle & Viola Müller, *Key Aspects of Sustainability in Fashion Retail*, in GREEN FASHION RETAIL 12–13 (Jochen Strähle ed., 2017).

<sup>35</sup> See, e.g., GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4.

<sup>36</sup> *Id.* at 8.

<sup>37</sup> See *id.*

clothing only increases with time, the future of our planet is dependent on fashioning an effective framework for clothing production that addresses social and environmental costs while also satisfying our thirst for style. Such a framework would rely on: (1) adopting a holistic approach to the clothing industry—one that considers the entire life cycle of an article of clothing—to measure the true environmental effects of textile production and implement solutions; (2) employing best design practices to minimize waste, use resources efficiently, and generate more value in our clothing; and (3) changing social norms relating to the consumer's role in the proliferation of waste and pollution as well as the consumer's ability to affect industry-wide change. Ultimately, prodding in the form of direct regulation may be needed if self-regulation and supervision within the industry cannot adequately address the imminent threats to our planet.

In this Note, I first offer key descriptions of the environmental impacts of each stage in the life cycle of clothing, the evolution of the sustainable fashion movement, and existing models of production. Next, I argue that applying life-cycle analysis as a standardized industry practice is one of the most efficient ways to measure the environmental impacts of the clothing and textile industry in the aggregate. Furthermore, it is through a combination of design, innovation, and changing consumer norms that the negative impacts of the industry can be curtailed. Lastly, it is entirely possible that official regulations will be necessary to stem environmental disruption if the wider fashion industry cannot do so through self-regulation and self-imposed standards. Sustainability should be more than just a consumer-friendly catchphrase employed to generate revenue. Sustainability should be a mantra embraced by the behemoth itself to combat the very real environmental threats that overproduction, overconsumption, and overall excess unnecessarily impose.

## I. BACKGROUND

### A. *The Clothing Supply Chain—The Life Cycle of an Article of Clothing*

Textile and apparel production is an intricate process that encompasses a multitude of stages.<sup>38</sup> Each stage has its own environmental impact, some of which are more detrimental than others.<sup>39</sup> In order to satisfactorily comprehend the severity of environmental damage the

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<sup>38</sup> MUTHU, *supra* note 15, at 1.

<sup>39</sup> *See id.*



fashion industry causes, it is necessary to look at the costs of each stage in the life cycle individually and implement practices and policies within each stage to lower said costs. As Part II later contends, applying a holistic impact analysis to clothing production and making it a standard industry practice is the most useful tool to measure the total environmental impacts of production.<sup>40</sup> The simplified stages in the “life cycle” of a garment, which together make up the supply chain of the clothing industry, are raw material cultivation, processing, garment manufacturing, transportation, retail, usage, and disposal.<sup>41</sup>

Producing the raw materials that inevitably become fabric and textiles is thought to be one of the most resource-depleting, energy-intensive stages of the clothing life cycle.<sup>42</sup> “The raw materials stage has a disproportionately large impact on sustainability, partly because of the effect it has on recyclability.”<sup>43</sup> The raw materials stage has a sustainability pulse score of only seventeen out of one hundred.<sup>44</sup> Two types of fibers are considered in this stage: natural and manmade.<sup>45</sup> Natural fibers include cotton, wool, silk, flax, and hemp.<sup>46</sup> Despite sounding environmentally friendly, producing these materials can have some of the highest environmental impacts.<sup>47</sup> Cotton production has received the most criticism.<sup>48</sup> Growing what is termed “conventional cotton” takes enormous amounts of water, pesticides, and fertilizers, and the effects are alarming.<sup>49</sup> The steady shrinking of the Aral Sea, which the fashion industry continues to deplete, is an infamous example of the adverse effects of

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<sup>40</sup> See *infra* notes 184–87.

<sup>41</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 31–32. Fashion academics have broken the supply chain into much more complex and detailed steps, but for the sake of argument, it is best to keep the process as simplified as possible. Entire books are written on the environmental impacts of textile production alone, not even considering the other phases. It is my hope that the small snapshot I provide is enough to make the reader understand the amount of resources that are utilized for clothing production and the effect that such production has on our planet.

<sup>42</sup> The *Pulse of the Fashion Industry* indicates that water, energy, and chemical usage are the highest impact areas of the raw materials phase. GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 41.

<sup>43</sup> *Id.* at 42.

<sup>44</sup> *Id.* at 41.

<sup>45</sup> BLACK, *supra* note 12, at 110.

<sup>46</sup> MUTHU, *supra* note 15, at 9, 11–12.

<sup>47</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 41.

<sup>48</sup> See PESTICIDE ACTION NETWORK UK, SOLIDARIDAD, AND WWF, SUSTAINABLE COTTON RANKING: ASSESSING COMPANY PERFORMANCE 6, 8 (2016).

<sup>49</sup> See *Cotton and the Environment*, ORGANIC TRADE ASSOCIATION, [https://www.ota.com/sites/default/files/indexed\\_files/CottonandtheEnvironment.pdf](https://www.ota.com/sites/default/files/indexed_files/CottonandtheEnvironment.pdf) [<https://perma.cc/T6RT-LDQP>] (last visited Jan. 11, 2019).

irrigation.<sup>50</sup> Cotton cultivation exhausts only 2.5% of the world's arable land, yet it employs 16% of global pesticides.<sup>51</sup> In the United States alone, 503.7 million pounds of nitrogen, 187.7 million pounds of phosphate, and 250.3 million pounds of potash were used as fertilizer in 2015.<sup>52</sup> The hazardous toxins emitted by pesticides and fertilizers put farmers at risk, create contaminated runoff, and exacerbate the effects of climate change.<sup>53</sup>

Despite the severity of cotton's effects on the planet, cotton still makes up a sizable portion of fiber used in clothing production at around 35.3%.<sup>54</sup> The U.S. Department of Agriculture's international outlook for global cotton production in 2017–18 estimates that production will increase by 13%, generating somewhere near 120.8 million bales.<sup>55</sup> Such a drastic increase in production will intensify cotton's already-prevalent detrimental effects. Organic cotton is a more favorable option to conventional cotton, because it can reduce fresh water consumption by 91%, global warming potential by 46%, and soil eutrophication by 26%.<sup>56</sup>

Manmade fibers, on the other hand, can either be synthetic—polyester and acrylic, for example—or cellulosic, like lyocell and modal, which are made from the cellulose of beech trees.<sup>57</sup> Synthetic fibers make up 61.3% of all fibers created by the textile industry, according to a 2011 study.<sup>58</sup> While synthetic fibers are strong and durable, reliance on them is particularly problematic because they are derived from petroleum oil, a non-renewable resource.<sup>59</sup> Moreover, high amounts of energy are needed to extract the oil from the earth and transform it into polymers through

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<sup>50</sup> Tansy Hoskins, *Cotton production linked to images of the dried up Aral Sea basin*, THE GUARDIAN (Oct. 1, 2014), <https://www.theguardian.com/sustainable-business/sustainable-fashion-blog/2014/oct/01/cotton-production-linked-to-images-of-the-dried-up-aral-sea-basin> [https://perma.cc/447E-V8Y3].

<sup>51</sup> ENVIRONMENTAL JUSTICE FOUNDATION, THE DEADLY CHEMICALS IN COTTON 8 (2007).

<sup>52</sup> UNITED STATES DEPARTMENT OF AGRICULTURE—NATIONAL AGRICULTURE STATISTICS SERVICE, 2015 AGRICULTURE CHEMICAL USE SURVEY: COTTON 1 (2016).

<sup>53</sup> See MUTHU, *supra* note 15, at 10.

<sup>54</sup> K.K. Leonas, *The Use of Recycled Fibers in Fashion and Home Products*, in TEXTILES AND CLOTHING SUSTAINABILITY: RECYCLED AND UPCYCLED TEXTILES AND FASHION 64 (Subramanian Senthilkannan Muthu ed., 2017). It is also estimated that 60% of the world's total cotton production is cultivated solely for use by the textile and clothing industry. ENVIRONMENTAL JUSTICE FOUNDATION, *supra* note 51, at 6.

<sup>55</sup> UNITED STATES DEPARTMENT OF AGRICULTURE ECONOMIC RESEARCH SERVICE, COTTON AND WOOL OUTLOOK 5 (2017).

<sup>56</sup> ORGANIC TRADE ASSOCIATION, *supra* note 49.

<sup>57</sup> MUTHU, *supra* note 15, at 2. See generally LENZING, FOCUS SUSTAINABILITY: SUSTAINABILITY IN THE LENZING GROUP 2008.

<sup>58</sup> MUTHU, *supra* note 15, at 13.

<sup>59</sup> See BLACK, *supra* note 12, at 149.

intensive chemical processes, which in turn generate copious amounts of greenhouse gases.<sup>60</sup> Producing nylon, for example, can require up to 250MJ/kg of fiber and creates nitrous oxide emissions in the process.<sup>61</sup> Nylon is also nearly impossible to recycle and emits poisonous gases if burned, making disposal difficult.<sup>62</sup>

Producing polyester also requires petroleum and can use up to 125MJ/kg of fiber.<sup>63</sup> The polyester production process emits organic compounds that are dangerous to human health and the ozone layer, as well as byproducts that are carcinogenic.<sup>64</sup> However, water consumption for polyester production is less than that of natural fibers<sup>65</sup> and some studies have found that a polyester blouse requires less energy consumption than a cotton T-shirt over its upkeep lifetime.<sup>66</sup> But in every single wash cycle, polyester garments release microfibers into the waterways that are already beginning to damage aquatic life and potentially the food chain.<sup>67</sup> Still, polyester is the most widely used fiber group in the world.<sup>68</sup> Lyocell, on the other hand, “has minimal environmental impact and is significantly more sustainable than oil-derived synthetic fibers . . . or natural fibres such as cotton.”<sup>69</sup> The eucalyptus and beech tree forests from which cellulose is derived are sustainably managed and require less land, water, and pesticides than cotton.<sup>70</sup>

The processing phase includes spinning, weaving, knitting, and other preparations to turn the raw materials into fabrics.<sup>71</sup> This phase has a somewhat higher pulse score than the first: thirty-eight out of one hundred.<sup>72</sup> As in the raw materials stage, the environmental effects of

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<sup>60</sup> Asim K. Roy Choudhury, *Sustainable chemical technologies for textile production*, in SUSTAINABLE FIBERS AND TEXTILES 281 (Subramanian Senthilkannan Muthu ed., 2017).

<sup>61</sup> MUTHU, *supra* note 15, at 15.

<sup>62</sup> *See id.*

<sup>63</sup> *Id.* at 14.

<sup>64</sup> *Id.* at 15.

<sup>65</sup> FLETCHER, *supra* note 20, at 12.

<sup>66</sup> Elisabeth Rosenthal, *Can Polyester Save the World?*, N.Y. TIMES (Jan. 25, 2007), <http://www.nytimes.com/2007/01/25/fashion/25pollute.html> [<https://perma.cc/7RCX-MMAF>].

<sup>67</sup> Leah Messinger, *How your clothes are poisoning our oceans and food supply*, THE GUARDIAN (June 20, 2016), <https://www.theguardian.com/environment/2016/jun/20/micro-fibers-plastic-pollution-oceans-patagonia-synthetic-clothes-microbeads> [<https://perma.cc/T8QS-ZBZ4>].

<sup>68</sup> Leonas, *supra* note 54, at 64.

<sup>69</sup> Choudhury, *supra* note 60, at 286.

<sup>70</sup> *Id.*

<sup>71</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 45.

<sup>72</sup> *Id.*

spinning vary according to fiber.<sup>73</sup> Weaving is said to have a much higher environmental impact than knitting because it is a more complex process, thereby utilizing more resources.<sup>74</sup> In general, the processing phase requires chemical treatments such as scouring and carbonizing (which create solid wastes as well as toxic effluents), energy to power machines, and fuel to transport raw materials to ginning facilities and then on to spinning factories.<sup>75</sup> This stage is also responsible for large quantities of wastewater that are the byproducts of chemical processes.<sup>76</sup> The *Pulse of the Fashion Industry* indicates that energy and chemical usage are the highest impact areas of the processing phase.<sup>77</sup>

The manufacturing stage includes dyeing, bleaching, printing, and other finishing processes.<sup>78</sup> This stage is detrimental because of the significant amounts of chemicals that are used and the rate at which these toxins seep into the water supply.<sup>79</sup> Part of the issue is the lack of a uniform set of guidelines to dispose of industrial wastewater responsibly and efficiently.<sup>80</sup> The manufacturing stage has a pulse score of twenty-eight out of one hundred.<sup>81</sup>

Transportation is the least environmentally hazardous phase, receiving the highest pulse score within the value chain: forty-one out of one hundred.<sup>82</sup> This stage entails the transportation of finished products to retailers, and eventually to customers.<sup>83</sup> The level of impact depends on the type of transportation.<sup>84</sup> However, because there are already incentives in place to minimize the need for transportation and “optimize the flow of goods,” the impact of this stage is much smaller than the previous

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<sup>73</sup> See MUTHU, *supra* note 15, at 17.

<sup>74</sup> See *id.* at 19; FLETCHER, *supra* note 20, at 48.

<sup>75</sup> See MUTHU, *supra* note 15, at 17–18.

<sup>76</sup> See *id.* at 20.

<sup>77</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 45.

<sup>78</sup> FLETCHER, *supra* note 20, at 49.

<sup>79</sup> See MUTHU, *supra* note 15, at 20.

<sup>80</sup> See ZERO DISCHARGE OF HAZARDOUS CHEMICALS PROGRAMME, 2015 TEXTILE INDUSTRY WASTEWATER DISCHARGE QUALITY STANDARDS: LITERATURE REVIEW 1-1 (2015). ZDHC has developed a set of wastewater guidelines for the textile and footwear industries to tackle the challenges of hazardous chemical discharge, including avoiding the use of particular dangerous chemicals and treating wastewater properly before discharge. See generally ZERO DISCHARGE OF HAZARDOUS CHEMICALS PROGRAMME, 2016 WASTEWATER GUIDELINES 4–5 (2016).

<sup>81</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 49.

<sup>82</sup> *Id.* at 51.

<sup>83</sup> *Id.*

<sup>84</sup> See MUTHU, *supra* note 15, at 22.

stages.<sup>85</sup> Likewise, the retail phase is a somewhat lower-impact phase with a score of twenty-eight out of one hundred.<sup>86</sup> The same cannot be said, however, for the usage and disposal stages.

The consumer use stage ranks high in energy impacts and moderately in water, chemical, and waste impacts.<sup>87</sup> The pulse for this stage is twenty-three out of one hundred.<sup>88</sup> It is estimated that consumer usage accounts for anywhere from 75–95% of the total environmental impact of the apparel industry.<sup>89</sup> Other estimates indicate consumer usage is responsible for 80% of the carbon footprint of the entire life cycle.<sup>90</sup> Environmental impacts occur from washing, drying, and overall garment upkeep.<sup>91</sup> The gravity of impacts are again dependent on the type of textile.<sup>92</sup> Other variables affecting impact include water temperature, the type of detergent used, and the heat setting for drying.<sup>93</sup> Cotton and polyester, for example, are shown to use the largest amounts of energy when it comes to washing and drying, while alternative materials use less.<sup>94</sup> A UK study found that the life cycle of a cotton T-shirt utilized 65MJ of energy for twenty-five washes at sixty degrees Celsius, including tumble-drying and ironing.<sup>95</sup> Contrastingly, the life cycle of a viscose blouse utilized only 7MJ of energy for twenty-five washes at forty degrees Celsius without tumble-drying and ironing.<sup>96</sup> Washing clothes is an essential part of human hygiene, but it is possible to minimize the impacts of this stage by lowering the number of loads of laundry washed each month,

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<sup>85</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 51.

<sup>86</sup> *Id.* at 53. The *Pulse of the Fashion Industry* indicates a great deal of disparity in the retail phase, contrasting luxury brands who have a pulse score of thirteen with “sustainability champions” who have a pulse score of seventy-five. *Id.* While the retail phase accounts for a proportion of the industry’s energy usage (lighting, heating, air conditioning, etc.), this is also the point in time where the fashion company interacts with its customers. *Id.* For many brands, that interaction does not include informing consumers about the impacts of usage and disposal, or how to best take care of their purchases. *Id.* Sustainability discourse is absent, which contributes to consumer unawareness and amplifies the environmental impacts of the last stages of the clothing life cycle.

<sup>87</sup> *Id.* at 57.

<sup>88</sup> *Id.*

<sup>89</sup> Gardetti & Torres, *supra* note 26, at 8.

<sup>90</sup> MUTHU, *supra* note 15, at 23.

<sup>91</sup> *See id.*

<sup>92</sup> *See id.*

<sup>93</sup> *See id.*

<sup>94</sup> DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS, BRIEFING NOTE: SUSTAINABILITY IMPACT OF CLOTHING AND CURRENT INTERVENTIONS 9 (2007).

<sup>95</sup> MUTHU, *supra* note 15, at 23.

<sup>96</sup> *Id.*

purchasing energy-efficient washers and dryers, and using eco-friendly detergents. Recent discoveries in biotechnology also affect the use phase. Peppermint yarn, for example, has been developed as an antimicrobial fiber that requires fewer washes per use.<sup>97</sup> Mint stem extracts have also been found to be an effective antimicrobial finish and a sustainable alternative to chemical finishes.<sup>98</sup>

The disposal phase is currently the most detrimental phase, scoring a pulse score of only nine out of one hundred.<sup>99</sup> The predominant environmental impact comes from the vast amounts of material waste generated from post-usage disposal, waste that sits unused in landfills.<sup>100</sup> The average American discards sixty-eight garments each year.<sup>101</sup> In the United States alone, 16.22 million tons of textile waste were generated in 2014<sup>102</sup> at a rate that has steadily increased since 1960.<sup>103</sup> Only 16.2% of that textile waste was recycled (2.62 million tons) while 64.5% remained in the landfill.<sup>104</sup> It is reported that most of that waste is 100% reusable or recyclable in some form.<sup>105</sup> On a global scale, the fashion industry generates

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<sup>97</sup> *Peppermint Yarn*, WUXI ASINTEX CO., <http://www.asin-tex.com/products/26458b7a-7dea-13f5-023b-fad1da4ef834.shtml> [<https://perma.cc/Y7W7-KY7J>] (last visited Jan. 11, 2019); Copenhagen Fashion Summit, *Livestream for Copenhagen Fashion Summit*, YOUTUBE (May 11, 2017), <https://www.youtube.com/watch?v=sefi2mcqCBo> [<https://perma.cc/LTV3-ZA93>]. PurThread® is another biotechnology company that embeds natural, recycled silver salts into fabrics for antimicrobial and odor protection. *Peppermint Yarn*, PURTHREAD®, <http://www.purthread.com/> [<https://perma.cc/JJR8-CML4>] (last visited Jan. 11, 2019). PurThread® boasts that its formulation can withstand ten to twenty home washes, which results in fewer cleanings and lessens the environmental impacts of the use phase. Debra Cobb, *Fresher, Safer, Longer-Lasting: Silver-Based Antimicrobials Enter a New Era*, INNOVATION IN TEXTILES: FIRST FOR TECHNICAL TEXTILES (Mar. 18, 2015), <http://www.innovationintextiles.com/fresher-safer-longerlasting-silverbased-antimicrobials-enter-a-new-era/> [<https://perma.cc/XR7C-X66A>].

<sup>98</sup> N. Saranya & G. Bagyalakshmi, *Antimicrobial Finishing on Cotton Fabric with Mint Stem Extract*, FIBRE2FASHION 5, <http://www.fibre2fashion.com/industry-article/7631/antimicrobial-finishing-on-cotton-fabric-with-mint-stem-extract?page=1> [<https://perma.cc/5ECV-CBDH>] (last visited Jan. 11, 2019).

<sup>99</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 59.

<sup>100</sup> *Id.*

<sup>101</sup> Adele Peters, *5 New Solutions For the Fashion Industry's Sustainability Problem*, FAST COMPANY (Feb. 1, 2016), <https://www.fastcompany.com/3055925/5-new-solutions-for-the-fashion-industrys-sustainability-problem> [<https://perma.cc/4D4U-CPPR>].

<sup>102</sup> ENVIRONMENTAL PROTECTION AGENCY, ADVANCING SUSTAINABLE MATERIALS MANAGEMENT: 2014 FACT SHEET 8 (2016).

<sup>103</sup> ENVIRONMENTAL PROTECTION AGENCY, ADVANCING SUSTAINABLE MATERIALS MANAGEMENT: FACTS AND FIGURES 2013 35 (2015).

<sup>104</sup> ENVIRONMENTAL PROTECTION AGENCY, *supra* note 102, at 8.

<sup>105</sup> T.S. Lewis, *Apparel disposal and reuse*, in SUSTAINABLE APPAREL: PRODUCTION, PROCESSING AND RECYCLING 233 (R.S. Blackburn ed., 2015).

around fifty-seven million tons of waste a year.<sup>106</sup> Solid textile waste also contributes to greenhouse gas emissions, as landfills are the third largest source of methane emissions in the United States.<sup>107</sup> There is much untapped potential in these discarded garments, but technology and innovation are not keeping pace with their rapid accumulation.<sup>108</sup>

Ultimately, as a piece of clothing transitions through the different phases, a fashion company's level of control over the item wanes, making the environmental effects of the last stages very dependent on consumer behavior.<sup>109</sup> This has been the prevailing view within the fashion industry, placing the responsibility for the garment and its disposal solely on the consumer.<sup>110</sup> However, attitudes have begun to change. Companies now realize the disposal stage often has "a vital role in determining the lifetime of [a] product and companies' profitability."<sup>111</sup> Today, fashion companies see the usage and disposal phases as the phases in most need of renovation, and realize that requires stakeholder collaboration to find sustainable solutions to address the growing amounts of waste.<sup>112</sup>

#### B. *The History of Today's Sustainable Fashion Movement*

The history and evolution of fashion has long been dependent on the exploitation of both people and resources.<sup>113</sup> This exploitation has grown exponentially as rising personal expenditures allow for greater consumption, thus creating an inexhaustible demand for consumer goods.<sup>114</sup> Industrialization has played a significant role in the development of the fashion industry and the way in which we consume.<sup>115</sup> In the twentieth century,

<sup>106</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 12.

<sup>107</sup> See *Overview of Greenhouse Gas Emissions*, ENVIRONMENTAL PROTECTION AGENCY, <https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane> [<https://perma.cc/E9AB-PEKY>] (last updated on Oct. 27, 2018).

<sup>108</sup> See GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 57.

<sup>109</sup> See KOZLOWSKI ET AL., *supra* note 10, at 14.

<sup>110</sup> See BLACK, *supra* note 12, at 59.

<sup>111</sup> Evrim Kabukcu & Şebnem M. Ensari, *Eco-Concepts & Ethical Issues in Sustainable Fashion Industry: Bemateks-Kids Fashion Group*, 6-5 INT'L J. RES. SOC. SCI. 11, 13 (2016).

<sup>112</sup> Anika Kozlowski, *Corporate Social Responsibility in the Apparel Industry: A Multiple Case Study Analysis* 81–82 (2012) (unpublished MASC thesis, Ryerson University) (online at <http://digital.library.ryerson.ca/islandora/object/RULA:1900>) [<https://perma.cc/6XRT-QSZE>].

<sup>113</sup> Nathaniel Dafydd Beard, *The Branding of Ethical Fashion and the Consumer: A Luxury Niche or Mass-market Reality?*, 12 FASHION THEORY 447, 450 (2008).

<sup>114</sup> *Personal Consumption Expenditures (PCE)*, FEDERAL RESERVE BANK OF ST. LOUIS: ECONOMIC RESEARCH, <https://fred.stlouisfed.org/series/PCE> [<https://perma.cc/4M95-7YU8>] (last visited Jan. 11, 2019).

<sup>115</sup> Beard, *supra* note 113, at 450–51.

“fashion became increasingly democratic, and everyone, regardless of rank or status, had a right to look fashionable.”<sup>116</sup> The 1950s witnessed a spike in consumption, particularly “after the deprivations of World War II.”<sup>117</sup> The birth of the counterculture in the 1960s and 1970s, however, led to the development of an entirely new and radical movement: the eco-fashion movement.<sup>118</sup>

The “hippie revolution” of the 1970s spurred ideas of consumer consciousness, environmental awareness, and simpler lifestyles in response to the outrages perpetuated by “mainstream consumer society.”<sup>119</sup> While these ideas were originally more politically motivated, they eventually took root in fashion and design circles in the later part of the twentieth century.<sup>120</sup> For example, London’s Design Centre held the “Green Designer” exhibition in 1986, one of the first steps toward using design as a way to stem the negative environmental effects of mass production.<sup>121</sup> The 1990s saw a resurgence of the same countercultural ideas “in a more commercial manner.”<sup>122</sup> Most trace the origins of today’s sustainable fashion movement to Esprit’s Ecollection, a clothing collection launched in the early 1990s to promote what its founder called “retail activism.”<sup>123</sup> Ecollection featured apparel made from recycled fabrics and low-impact dyes to reduce the amount of pollution generated by clothing production.<sup>124</sup> Patagonia also emerged at this time as one of the leading champions of low-emission production, recycled materials, and overall environmental awareness in apparel manufacturing.<sup>125</sup> Eco-fashion, however, remained a substantially fringe faction in the 1990s, touted by “new-age” devotees who did not epitomize conventional fashion standards with their natural hemp, dreadlocked look.<sup>126</sup> Kate Fletcher, a prominent figure in the sustainable fashion community, calls this phase “eco chic,” where the focus was on “simplistic perceptions of chemicals and industrial pollution [rather]

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<sup>116</sup> YUNIYA KAWAMURA, *FASHION-LOGY* 5 (2005).

<sup>117</sup> Beard, *supra* note 113, at 451.

<sup>118</sup> BLACK, *supra* note 12, at 19.

<sup>119</sup> Beard, *supra* note 113, at 451. See Linda Welters, *The Fashion of Sustainability*, in *SUSTAINABLE FASHION, WHY NOW?*, *supra* note 10, at 21; BLACK, *supra* note 12, at 19.

<sup>120</sup> Thomas, *supra* note 25, at 530.

<sup>121</sup> JONATHAN M. WOODHAM, *TWENTIETH-CENTURY DESIGN* 237 (1997).

<sup>122</sup> BLACK, *supra* note 12, at 19.

<sup>123</sup> *Esprit: Thompkins Changes Business Life*, ST. LOUIS POST-DISPATCH (Oct. 10, 1991), <https://www.newspapers.com/newspage/141458683/> [<https://perma.cc/3P8N-US9U>]. BLACK, *supra* note 12, at 21; Thomas, *supra* note 25, at 530.

<sup>124</sup> *Esprit: Thompkins Changes Business Life*, *supra* note 123.

<sup>125</sup> BLACK, *supra* note 12, at 21.

<sup>126</sup> *Id.*



than a conversion to sustainability values.”<sup>127</sup> These countercultural ideas, which materialized as unconventional styles of dress, were more reactionary than they were innovative attempts to implement solutions and affect industry-wide reforms.<sup>128</sup>

The period from 2006–08, however, witnessed the greatest industry response to incorporating sustainable methods of production.<sup>129</sup> Nurtured by the intersection of several campaigns, including the development of environmentalism, the growth of and demand for Fair Trade practices, and the organic food movement, the current movement of sustainable fashion was born.<sup>130</sup> The current sustainable fashion movement differs from its 1990s predecessor in several respects. First, fashion companies have sprung up in the past couple decades that are founded solely on environmentally friendly principles, incorporating ideas of stewardship and environmental responsibility into everyday practices.<sup>131</sup> Alternatively, many fashion brands have made a public switch to sustainable practices, incorporating a recognizable concern for the environment into sourcing decisions.<sup>132</sup> Second, publicity has transformed the ways in which consumers hold the fashion industry accountable for its actions.<sup>133</sup> For example, the 2013 garment factory collapse of Rana Plaza in Bangladesh, which claimed the lives of 1,135 people,<sup>134</sup> spurred a hashtag campaign “#Whomademyclothes” to demand transparency from the fashion industry.<sup>135</sup> Third, there is increasing involvement from other industries to

<sup>127</sup> FLETCHER, *supra* note 20, at 118–19.

<sup>128</sup> Thomas, *supra* note 25, at 530.

<sup>129</sup> Beard, *supra* note 113, at 452.

<sup>130</sup> Thomas, *supra* note 25, at 537; Paulina Księżak, *The CSR Challenges in the Clothing Industry*, 3 J. CORP. RESP. & LEADERSHIP 57, 58 (2016).

<sup>131</sup> BLACK, *supra* note 12, at 21.

<sup>132</sup> Luxury brand Stella McCartney, for example, has switched to recycled polyester, regenerated cashmere, and organic cotton for its products. *Materials and innovation*, STELLAMCCARTNEY, <https://www.stellamccartney.com/experience/us/sustainability/materials-and-innovation/> [<https://perma.cc/EY9H-PXUE>] (last visited Jan. 11, 2019). Stella McCartney has also partnered with numerous environmental non-profits to ensure sustainable practices become commonplace. Partners include the Natural Resources Defense Council (“NRDC”), the Sustainable Apparel Coalition, Textile Exchange, and Canopy. *Collaborations*, STELLAMCCARTNEY, <https://www.stellamccartney.com/experience/en/sustainability/collaborations/> [<https://perma.cc/J9JW-44K6>] (last visited Jan. 11, 2019).

<sup>133</sup> Federico Caniato et al., *Environmental Sustainability in Fashion Supply Chains: An exploratory case based research*, 135 INT. J. PRODUCTION ECON. 659, 660 (2012).

<sup>134</sup> Emine Saner, *Sustainable style: will Gen Z help the fashion industry clean up its act?*, THE GUARDIAN (Apr. 25, 2017), <https://www.theguardian.com/fashion/2017/apr/25/sustainable-clothing-fashion-revolution-week-rana-plaza-emma-watson> [<https://perma.cc/7FR5-ECRW>].

<sup>135</sup> Ashoka, *3 Ways The Conscious Fashion Movement Is Raising Its Game With Millennials*,

make sustainable fashion a reality. For example, New York Fashion Tech Lab, founded by Miroslava Duma and Springboard Enterprises in 2014, is a non-profit program that helps fashion companies learn about and implement technological innovation in the nanotechnology, biotechnology, and materials science sectors.<sup>136</sup> Most importantly, fashion companies have begun creating garments that are aesthetically pleasing, as well as produced through environmentally friendly processes.<sup>137</sup> While this is still a challenge within the broader context of sustainable fashion, making desirable and beautiful clothing without compromising sustainable ideas is a departure from the eco-chic clothing of the 1990s.<sup>138</sup>

Much of today's sustainable fashion movement centers around restraining the exponential growth of fast fashion.<sup>139</sup> The development of the fast fashion model is often cited as the leading cause of the tremendous waste and detrimental environmental impacts generated by the industry.<sup>140</sup> "Fast fashion" refers to "economic speed," the practice of minimizing factory-to-floor time to keep a constant stream of clothing options available to consumers.<sup>141</sup> The products of a fast fashion system are cheaply manufactured, which is attractive to many consumers because they are then cheap to purchase.<sup>142</sup> By its very nature, fast fashion

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FORBES (Mar. 1, 2016), <https://www.forbes.com/sites/ashoka/2016/03/01/3-ways-the-conscious-fashion-movement-is-raising-its-game-with-millennials/#316970416677> [<https://perma.cc/87UC-CRQM>].

<sup>136</sup> Rachna Bhasin, *Cracking Fashion's Code*, HARPER'S BAZAAR (May 25, 2017), <http://www.harpersbazaar.com/culture/features/a9924807/miroslava-duma-fashion-tech-lab/> [<https://perma.cc/K4GM-S6GS>]. One of Fashion Tech Lab's recent ventures is Orange Fiber, an Italian company that has discovered the technology to produce fabric from discarded orange peels. *Id.* See generally NEW YORK FASHION TECH LAB, <http://nyftlab.com/> [<https://perma.cc/WJ44-ZZXR>] (last visited Jan. 11, 2019).

<sup>137</sup> Thomas, *supra* note 25, at 530. As Sandy Black states, sustainably produced garments must also be "designed for delight . . . if eco-fashion is to be successful." BLACK, *supra* note 12, at 47.

<sup>138</sup> BLACK, *supra* note 12, at 44.

<sup>139</sup> KOZLOWSKI ET AL., *supra* note 10, at 1.

<sup>140</sup> See *id.*; Clare D'Souza, *Marketing Challenges for an Eco-Fashion Brand: A Case Study*, 19-1 FASHION THEORY 67, 69 (2015); Kozlowski, *supra* note 112, at 11; Rudrajeet Pal, *Sustainable Value Generation Through Post-Retail Initiatives: An Exploratory Study of Slow and Fast Fashion Businesses*, GREEN FASHION (VOL. 1) 129-30 (Subramanian Senthilkannan Muthu & Miguel Angel Gardetti eds., 2016).

<sup>141</sup> FLETCHER, *supra* note 20, at 162. See also Tsan-Ming Choi, *Fast fashion systems—An introduction*, in FAST FASHION SYSTEMS: THEORIES AND APPLICATIONS 3 (Tsan-Ming Choi ed., 2014).

<sup>142</sup> Arlesa Shephard & Sanjukta Pookulangara, *The slow fashion process: Rethinking strategy for fast fashion retailers*, in FAST FASHION SYSTEMS: THEORIES AND APPLICATIONS 10 (Tsan-Ming Choi ed., 2014).

apparel is intended to be disposable, non-durable, and valueless.<sup>143</sup> This particular business model thrives on constant consumption and a perpetuation of the buy-use-dispose cycle.<sup>144</sup> Fast fashion “represent[s] a consumption hysteria that far exceeds human needs and planetary boundaries.”<sup>145</sup> Fast fashion is inherently unsustainable because of its “downward pressure on working conditions and environmental standards” and its shocking rate of resource depletion.<sup>146</sup> The changing nature of merchandise seasons within the industry also supplements the growth of this model.<sup>147</sup> What are termed “short-season products” saturate today’s clothing market.<sup>148</sup> More commonly known as “trends,” these garments’ “average life cycle is only 6–10 weeks,” which in turn puts pressure on clothing companies to manufacture quickly and cheaply, to cater to consumer demand.<sup>149</sup>

The antithesis of the fast fashion model is “slow fashion.”<sup>150</sup> Slow fashion represents durability, value, and quality.<sup>151</sup> It distinguishes its products from the disposable products of fast fashion by placing an emphasis on environmental impacts, regeneration cycles, and overall corporate responsibility.<sup>152</sup> Slow fashion brands are “considered comparatively more planet-friendly owing to their diverse practices of supporting local manufacturing, durable or timeless product designs, reuse activities, slow consumption, and the like.”<sup>153</sup> Slow fashion is more sustainable because its production practices embody balance, mindfulness, and stability.<sup>154</sup> Most importantly, this model recognizes the importance of building a relationship with the consumer, which encourages transparency and a harmonization of efforts to minimize the negative effects of clothing

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<sup>143</sup> Anders Haug & Jacob Busch, *Towards an Ethical Fashion Framework*, 20 FASHION THEORY 317, 320 (2015).

<sup>144</sup> Shephard & Pookulangara, *supra* note 142, at 11.

<sup>145</sup> Mônica Cavalcanti Sá de Abreu, *Perspectives, Drivers, and a Roadmap for Corporate Social Responsibility in the Textile and Clothing Industry*, in ROADMAP TO SUSTAINABLE TEXTILES AND CLOTHING: REGULATORY ASPECTS AND SUSTAINABILITY STANDARDS OF TEXTILES AND THE CLOTHING SUPPLY CHAIN 2 (Subramanian Senthilkannan Muthu ed., 2015).

<sup>146</sup> FLETCHER, *supra* note 20, at 162.

<sup>147</sup> Księżak, *supra* note 130, at 54.

<sup>148</sup> *Id.* at 55.

<sup>149</sup> *Id.* at 54. Forever 21, H&M, Zara, and Primark are a few of the most widely known fast fashion brands.

<sup>150</sup> Pal, *supra* note 140, at 130.

<sup>151</sup> Kate Fletcher, *Slow Fashion: An Invitation for Systems Change*, 2 FASHION THEORY 259, 262 (2010).

<sup>152</sup> FLETCHER, *supra* note 20, at 173.

<sup>153</sup> Pal, *supra* note 140, at 128.

<sup>154</sup> FLETCHER, *supra* note 20, at 174.

production.<sup>155</sup> Slow fashion embraces an entirely different production lens than fast fashion, one that recognizes that individual decisions and desires have far-reaching impacts on our planet.

C. *Production Analogies and Metaphors Within the Fashion Industry*

Perhaps one of the biggest challenges to sustainable fashion is redefining the lens within which the entire fashion system is viewed.<sup>156</sup> Production and consumption paradigms ultimately define economic structures, supply chain operations, use and disposal attitudes, and the likelihood of sustainable outcomes. From a business standpoint, it is difficult for companies to structurally change their operations when they are constrained by the limitations of the prevailing manufacturing model. Operating outside the box is an undeniable risk and one that might not realize immediate gains. However, if the model were to change, if manufacturing were infused with concepts of value generation and holistic thinking, then many of clothing manufacturing's harmful consequences could be curtailed.

The current model of production is a linear model, complemented by what Susan Kaiser terms "binary thinking."<sup>157</sup> The linear model exists in order to conceptualize material flows, how a product begins at point A and ends at point B.<sup>158</sup> The fashion industry completely embraces this model, as evidenced by its neatly compartmentalized supply chain.<sup>159</sup> As subsection A illustrated, the linear model perpetuates excessive resource use, overproduction, and waste.<sup>160</sup> Instead of adding to society, operating within the linear model only takes away, which is inherently unsustainable for our planet.

While this framework makes a complicated process easier to understand, it is overly simplistic and ignores the symbiotic nature of

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<sup>155</sup> Pal, *supra* note 140, at 130. Examples of slow fashion brands include Eileen Fisher, People Tree, and Zady.

<sup>156</sup> FLETCHER, *supra* note 20, at 73 ("Fostering this new way of seeing is the ongoing biggest challenge of sustainability for the fashion and textile sector—to build a convincing, reflective and ethical paradigm that is more sustainable by design.")

<sup>157</sup> Susan Kaiser, *Mixing Metaphors in the Fiber, Textile, and Apparel Complex*, in SUSTAINABLE FASHION, WHY NOW?, *supra* note 10, at 143.

<sup>158</sup> Kaiser, *supra* note 157, at 149.

<sup>159</sup> *Id.* at 151.

<sup>160</sup> ELLEN MACARTHUR FOUNDATION, A NEW TEXTILES ECONOMY: REDESIGNING FASHION'S FUTURE USE 19 (2017); see discussion *infra* notes 38–53.

industrialization.<sup>161</sup> Manufacturing is categorized as a static and one-dimensional enterprise, which limits flexibility and innovation, and obscures any kind of opportunities for reuse or regeneration.<sup>162</sup> Thinking solely in binary terms of production and consumption, that a product is created to ultimately be thrown away, restricts the industry's ability to plan and design for future use. It is estimated that "[m]ore than USD 500 billion of value is lost every year due to clothing underutilisation and the lack of recycling."<sup>163</sup> Working within a linear model impedes the discovery of such value from the get-go. This "take, make, waste" model has created significant environmental disruption and will only continue to do so until the fashion industry embraces a new paradigm that minimizes environmental impacts and concentrates on value creation.<sup>164</sup>

The alternative to the linear model is a circular model of production. As its name suggests, a circular framework "replaces the end-of-life concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse and return to the biosphere, and aims for the elimination of waste through the superior design of materials, products, systems and business models."<sup>165</sup> The "end" of a product's life is viewed as a new beginning, a more technical application of the age-old adage "one man's trash is another man's treasure."<sup>166</sup> Often termed closed-loop production, this metaphor is anchored by design practices that "maximize value creation over the entire lifecycle of a product."<sup>167</sup> Such a vision relies on integrating biodegradability, non-toxicity, and longevity into products.<sup>168</sup> Instead of continually depleting non-renewable resources and engaging in wasteful disposal, companies can recapture value from discarded items by designing them to be reused in the first place.<sup>169</sup> Proponents of a circular model see circularity as a complete redefinition of the economy, industrialization, and societal

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<sup>161</sup> Kaiser, *supra* note 157, at 149.

<sup>162</sup> *Id.* at 143.

<sup>163</sup> ELLEN MACARTHUR FOUNDATION, *supra* note 160, at 3.

<sup>164</sup> Whitty, *supra* note 27.

<sup>165</sup> WORLD ECONOMIC FORUM, TOWARDS THE CIRCULAR ECONOMY: ACCELERATING THE SCALE-UP ACROSS GLOBAL SUPPLY CHAINS 15 (2014).

<sup>166</sup> See Jennifer Whitty, *Space Between: A Model of Social Innovation for Fashion*, in UNMAKING WASTE 2015 CONFERENCE PROCEEDINGS 624 (2015).

<sup>167</sup> Jochen Strähle & Franziska Phillipsen, *Closed-Loop Production: A Literature Review*, in GREEN FASHION RETAIL 29 (Jochen Strähe ed., 2017).

<sup>168</sup> *Circular fashion*, CIRCULAR FASHION, <https://circularfashion.com/circular-fashion-definition/> [<https://perma.cc/4EPW-5NXL>] (last visited Jan. 11, 2019).

<sup>169</sup> See Whitty, *supra* note 27, at 33–34, 42.

attitudes that will ultimately “generate[ ] business and economic opportunities, and provide[ ] environmental and societal benefits.”<sup>170</sup> The 2017 *Pulse of the Fashion Industry* points to a circular production model as a way to reclaim value from discarded garments<sup>171</sup> and prevent “value leakage.”<sup>172</sup> Instead of embracing a one-dimensional framework that encourages the overproduction of disposable clothing, the fashion industry can embrace “the space between” by “working collaboratively in a multi-dimensional capacity.”<sup>173</sup>

## II. PROPOSED SOLUTIONS

There is no clear definition of or a uniform approach to “sustainable fashion.”<sup>174</sup> This void allows companies to “greenwash” instead of implementing actual industry change, choosing to call products “eco-friendly” without actually tracing the supply chain or changing manufacturing processes.<sup>175</sup> Kate Fletcher argues that there are two different approaches to sustainability in the fashion world. One involves “more of the same, but more efficient,” essentially keeping the system in place, but doing a better job of running it.<sup>176</sup> The other involves “necessitating something different,” in other words, completely altering the current paradigms of production and consumption.<sup>177</sup> Sustainable ideas, ideas that lead “toward improvements in quality of life for human beings and their communities” and that are “oriented to the long-term and able to last,” need to form the basis of the fashion industry moving forward.<sup>178</sup> This means fashioning an outlook between both producers and consumers that generates change through commitment, collaboration, and environmental consciousness. Changing the lens through which production and consumption is viewed, as well as the ways in which each individual can counteract the harmful

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<sup>170</sup> *Circular Economy Overview*, ELLEN MACARTHUR FOUNDATION, <https://www.ellenmacarthurfoundation.org/circular-economy/overview/concept> [http://perma.cc/9B82-XHV9] (last visited Jan. 11, 2019).

<sup>171</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 61.

<sup>172</sup> *Id.* at 71.

<sup>173</sup> Whitty, *supra* note 27, at 625.

<sup>174</sup> KOZLOWSKI ET AL., *supra* note 10, at 5; Kabukcu & Ensari, *supra* note 111, at 12.

<sup>175</sup> Thomas, *supra* note 25, at 525, 528; GORDON & HILL, *supra* note 26, at XV; *see* discussion *infra* notes 256–62 for more discussion on greenwashing and how it contributes to consumer confusion.

<sup>176</sup> FLETCHER, *supra* note 20, at XIII.

<sup>177</sup> *Id.*

<sup>178</sup> CENTRE FOR INTERNATIONAL SUSTAINABLE DEVELOPMENT LAW, WHAT IS SUSTAINABLE DEVELOPMENT LAW? 1 (2005).

environmental impacts of the fashion industry, is the first and most important step to take in sustainable fashion.<sup>179</sup>

It is said that “an enterprise is only as sustainable as its supply chain”<sup>180</sup> and as Part I indicated, the supply chains of the majority of the fashion world are far from that.<sup>181</sup> Implementing sustainable fashion as the new norm within the industry requires an overhaul of the current production and consumption systems, a complete redefinition of the entire business model.<sup>182</sup> The current model is one of overproduction and oversaturation, two outcomes of the “take, make, waste” model that society perpetuates.<sup>183</sup> Redefining the system requires adopting a holistic approach to understand that environmental impacts occur long after the manufacturing stage, utilizing a method of data collection to measure those environmental effects, and employing design processes to renew and reuse materials. Most importantly, society needs to alter the way in which it views consumption and instead, demand accountability and transparency from producers to make more environmentally conscious decisions. However, if self-regulation does indeed fail to change the status quo, policymakers may need to step in.

A. *Implementing Life-Cycle Analysis (“LCA”) as a Standardized Practice*

The greatest deficiency of the clothing industry, and its greatest barrier to enacting sustainable practices, is its lack of transparency, which is the result of its current “lack of accessible, high-quality data on the environmental impact of fashion products.”<sup>184</sup> Without knowing precisely what the impacts are and where along the chain the impacts hit hardest, it is impossible to foster solutions to address the environmental footprint of the fashion industry.<sup>185</sup> In order to generate an accurate representation of the harmful effects of production *and* consumption, and subsequently adopt solutions to address those realities, the fashion industry should employ the measurement tool life-cycle analysis (or life-cycle assessment) (“LCA”). LCA is a “compilation and evaluation of the inputs,

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<sup>179</sup> See FLETCHER, *supra* note 20, at 73 (“Paradigms, or the accepted models of how things relate to one another, are the sources of the systems. If we influence things at the level of a paradigm, then a system can totally be transformed.”).

<sup>180</sup> Książak, *supra* note 130, at 56.

<sup>181</sup> See *discussion supra* notes 38–53.

<sup>182</sup> Kate Fletcher, *Not One But Many: New Visions for Fashion*, in *FUTURE FASHION WHITE PAPERS 276* (Leslie Hoffman, ed., Earth Pledge (2007)).

<sup>183</sup> Whitty, *supra* note 27, at 32.

<sup>184</sup> Koster, *supra* note 16.

<sup>185</sup> MUTHU, *supra* note 15, at 105–06.

outputs and the potential environmental impacts of a product system throughout its life cycle.”<sup>186</sup> In terms of the fashion industry, LCA is a method of quantitative data collection that would assess the environmental impacts of the stages of the clothing supply chain.<sup>187</sup>

There are four phases in an LCA study: (1) the goal and scope definition phase; (2) the inventory analysis phase; (3) the impact assessment phase; and (4) the interpretation phase.<sup>188</sup> Cumulatively, these four phases specify the numerical degree of environmental impact, leaving companies to decide how to best tackle sustainability issues.<sup>189</sup> LCA is also a tool that fits within the broader theme of corporate social responsibility.<sup>190</sup> As more companies work toward incorporating environmental and social concerns into their business decisions and overall operations, LCA

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<sup>186</sup> INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, ISO 14040:2006(EN): ENVIRONMENTAL MANAGEMENT—LIFE CYCLE ASSESSMENT—PRINCIPLES AND FRAMEWORK, <https://www.iso.org/obp/ui/#iso:std:iso:14040:ed-2:v1:en> [<https://perma.cc/3A2F-7BPY>] (last visited Jan. 11, 2019). It is important to note that there are varying definitions of the “life cycle” for purposes of a life cycle assessment. The variation depends on the set end boundary, which adjusts to encompass shorter or longer time spans depending on the needs of the company conducting the LCA. The four prevailing production life cycles are cradle to gate (materials extraction to the finished product leaving the factory gate), cradle to site (materials extraction to the site of use), cradle to grave (materials extraction to either disposal, reuse, or recycling), and cradle to cradle (designing a product specifically to avoid disposal). *Glossary of Terms and Definitions*, CIRCULAR ECOLOGY, [http://www.circularecology.com/glossary-of-terms-and-definitions.html#.Wod\\_eqinE2w](http://www.circularecology.com/glossary-of-terms-and-definitions.html#.Wod_eqinE2w) [<https://perma.cc/PL6T-DW2J>] (last visited Jan. 11, 2019). The cradle to cradle metaphor has received the most attention within the past few decades as more individuals have been calling for a move to a more circular economy.

<sup>187</sup> INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, ISO 14040:2006(EN): ENVIRONMENTAL MANAGEMENT—LIFE CYCLE ASSESSMENT—PRINCIPLES AND FRAMEWORK, <https://www.iso.org/obp/ui/#iso:std:iso:14040:ed-2:v1:en> [<https://perma.cc/DWR7-HERD>] (last visited Jan. 11, 2019).

<sup>188</sup> *Id.* A company decides during the goal and scope definition phase what processes and environmental concerns will be included in the LCA. CERTIFIED B CORPORATION™, B RESOURCE GUIDE: CONDUCTING A LIFE CYCLE ASSESSMENT (LCA) (Sept. 16, 2008), [http://nbis.org/nbisresources/life\\_cycle\\_assessment\\_thinking/guide\\_life\\_cycle\\_assessment\\_bcorp.pdf](http://nbis.org/nbisresources/life_cycle_assessment_thinking/guide_life_cycle_assessment_bcorp.pdf) [<https://perma.cc/YK7M-7D45>]. This is where determining the extent of the life cycle comes into play. The inventory analysis phase takes note of all inputs (chemicals and materials) and outputs (greenhouse gas and water emissions) that are part of the predetermined life cycle. CERTIFIED B CORPORATION™, B RESOURCE GUIDE: CONDUCTING A LIFE CYCLE ASSESSMENT (LCA) (Sept. 16, 2008), [http://nbis.org/nbisresources/life\\_cycle\\_assessment\\_thinking/guide\\_life\\_cycle\\_assessment\\_bcorp.pdf](http://nbis.org/nbisresources/life_cycle_assessment_thinking/guide_life_cycle_assessment_bcorp.pdf) [<https://perma.cc/2BNP-EL2C>]. Data compiled during the inventory phase are converted to indicators in the impact assessment phase (eutrophication, natural resources, ecotoxicity, etc.). *Id.* The interpretation phase requires a company to analyze the results of the LCA and determine how to best proceed to meet its sustainability goals. *Id.*

<sup>189</sup> KOZŁOWSKI ET AL., *supra* note 10, at 5.

<sup>190</sup> *Id.* at 2.



is crucial to that undertaking.<sup>191</sup> It is through the holistic view of LCA that the fashion industry will be able to correct many of its shortcomings in clothing production. Instead of gauging environmental disruption purely from a manufacturing standpoint, which has been the recent trend, the *entire* life cycle—from a garment's inception to its ultimate disposal—needs to be taken into account.

As an environmental management tool, LCA is now a standardized methodology through the International Organization for Standardization ("ISO").<sup>192</sup> The ISO 14000 Family of International Standards provides uniform procedures for companies in many industries to adopt as part of their supply chain management strategies.<sup>193</sup> These procedures include ISO 14001 (framework for environmental management systems), ISO 14040 (Life Cycle Assessment Principles and Framework), and ISO 14044 (Life Cycle Assessment Requirements and Guidelines).<sup>194</sup> Each standard works in tandem with the others to provide companies with important data concerning their environmental management performance.<sup>195</sup> In the context of sustainable fashion, LCA is a fundamental building block to achieve a vision of production and consumption that is mindful of the earth. Actively striving to decrease harmful effects where possible is part of that mindfulness. As Part I illustrated, there is a multitude of environmental impacts associated with clothing production, usage, and disposal.<sup>196</sup> It is because LCA has begun to gain some traction in the fashion industry that the severity of these impacts is now somewhat documented.<sup>197</sup> Practically speaking, it would be nearly impossible to perform a LCA of every single

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<sup>191</sup> *Id.*

<sup>192</sup> ISO is a non-governmental international organization based in Geneva, Switzerland that develops specifications for products, services, and systems. *About Us*, INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, <https://www.iso.org/about-us.html> [<https://perma.cc/9TKU-F5VJ>] (last visited Jan. 11, 2019). ISO was founded in 1946 and today has members from 161 countries. *Id.* Many of ISO's standards cover technological and manufacturing processes. *Id.* ISO standards are critical resources for the fashion industry, which currently lacks any kind of standardization. ISO standards are internationally recognized and reputable, so implementation across the entire fashion industry is possible.

<sup>193</sup> *See generally* INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, ENVIRONMENTAL MANAGEMENT: THE ISO 14000 FAMILY OF INTERNATIONAL STANDARDS, [https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/theiso14000family\\_2009.pdf](https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/theiso14000family_2009.pdf) [<https://perma.cc/4UPY-J5YW>] (last visited Jan. 11, 2019).

<sup>194</sup> *Id.* at 9.

<sup>195</sup> *Id.* at 2.

<sup>196</sup> *See discussion supra* notes 38–53.

<sup>197</sup> *See, e.g.*, KOZLOWSKI ET AL., *supra* note 10, at 4 ("The recent use of LCAs to identify the environmental impacts of apparel has highlighted that the consumer use phase not only has one of the largest negative environmental impacts but is also the most overlooked aspect").

garment created every single day in the clothing industry.<sup>198</sup> “Full” LCAs are also critiqued as expensive and time-intensive.<sup>199</sup> Rather, a fashion company can begin by focusing on a particular area of interest in its supply chain to perform a life-cycle analysis and implement practical changes.<sup>200</sup>

Levi Strauss & Co. (“LS&Co.”) is a major LCA pioneer within the apparel industry. In 2007, LS&Co. conducted the apparel industry’s first LCA “to assess the full environmental impact of a core set of products from cradle to grave.”<sup>201</sup> Their LCA indicated that the material cultivation and consumer use phases had the greatest environmental impacts, which caused LS&Co. to rethink the way it produces jeans.<sup>202</sup> Since 2007, LS&Co. has created a number of initiatives to manufacture and consume products with diminished environmental impacts. Some of these initiatives include Levi’s® Water>Less™ process, partnering with the NRDC’s “Clean by Design” program to reduce energy and chemical use, and adding “Care Tags” to their products to help consumers minimize water and energy usage.<sup>203</sup> LS&Co. is also the first apparel company to create a statistical method of quantifying environmental performance, allowing its designers to evaluate at the outset the environmental effects of materials and manufacturing processes.<sup>204</sup> In 2016, H&M also conducted a LCA to better understand the impacts of using recycled cotton instead of virgin cotton.<sup>205</sup> Post-LCA, H&M is now the second largest user of organic cotton because of its proven lower environmental impact.<sup>206</sup> H&M has also invested in research and development programs post-LCA to create technological processes that allow more cotton to be collected from recycled garments, decreasing the amount of virgin and/or organic cotton produced and the accompanying environmental effects.<sup>207</sup>

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<sup>198</sup> *Id.* at 5.

<sup>199</sup> EUROPEAN ENVIRONMENT AGENCY, LIFE CYCLE ASSESSMENT (LCA): A GUIDE TO APPROACHES, EXPERIENCES AND INFORMATION SOURCES 10 (1997).

<sup>200</sup> See MUTHU, *supra* note 15, at 39.

<sup>201</sup> *Sustainability: Planet: Lifecycle Assessment*, LEVI STRAUSS & CO., <http://www.levistrauss.com/sustainability/planet/#lifecycle-assessment> [<https://perma.cc/5TFF-RBXJ>] (last visited Jan. 11, 2019).

<sup>202</sup> *Id.*

<sup>203</sup> *Sustainability: Planet*, LEVI STRAUSS & CO., <http://www.levistrauss.com/sustainability/planet/> [<http://perma.cc/4QEE-A3U2>] (last visited Jan. 11, 2019). As of 2015, LS&Co. has saved more than one billion liters of water after conducting its LCA. *Id.*

<sup>204</sup> Amy Westervelt, *Levi’s makes life-cycle assessment part of its fabric*, GREENBIZ (May 22, 2012), <https://www.greenbiz.com/blog/2012/05/22/how-levis-made-life-cycle-assessment-part-its-fabric> [<https://perma.cc/4QEE-A3U2>].

<sup>205</sup> H&M, THE H&M GROUP SUSTAINABILITY REPORT 2016 45 (2016).

<sup>206</sup> *Id.*

<sup>207</sup> *Id.*

While LCA demonstrates which segments of the supply chain are in most need of renovation, it does not offer a concrete framework to minimize environmental harm.<sup>208</sup> That is the singular choice of a fashion company. An LCA's strongest point is its informational value, because it allows fashion companies to make decisions based on their findings and fit them to individual needs and pressures. Despite the multitude of benefits accompanying LCA practices, engaging in LCA is predominantly a voluntary practice.<sup>209</sup> In the United States, the Environmental Protection Agency ("EPA") is the only entity required to use lifecycle analysis in some capacity.<sup>210</sup> The Energy Independence and Security Act of 2007 ("EISA") mandates the EPA to conduct a LCA of certain biofuels to make sure they meet mandatory greenhouse gas emission thresholds in order to be considered renewable fuel.<sup>211</sup> Yet, a 2011 sustainability report commissioned by the EPA recommended that the agency:

should continue to adapt its current method of cost benefit analysis for sustainability by . . . improving its estimates of the value of ecosystem services, extending its boundaries by incorporating life-cycle analysis, and better addressing inter-generational and environmental justice considerations.<sup>212</sup>

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<sup>208</sup> See generally Frank R. Field III & John R. Ehrenfeld, *Life-Cycle Analysis: The Role of Evaluation and Strategy*, in MEASURES OF ENVIRONMENTAL PERFORMANCE AND ECOSYSTEM CONDITION (Peter C. Schulze ed., 1999). LCA is certainly a useful tool, but it then follows that "the best course of action requires an assessment of the relative importance of each of a number of possible consequences." *Id.* A fashion company might cut water usage in the production phase, but doing so might be at the expense of energy usage. It goes without saying that any kind of manufacturing creates externalities, so companies face complex decisions when it comes to implementing the results of a LCA study.

<sup>209</sup> Christina Seidel, *The application of life cycle assessment to public policy development*, 21 THE INT'L J. OF LIFE CYCLE ASSESSMENT 337, 337 (2016).

<sup>210</sup> Daniel L. Reed, *Life-Cycle Assessment in Government Policy in the United States* 25 (Aug. 2012) (unpublished Ph.D. dissertation, University of Tennessee) (online at [http://trace.tennessee.edu/utk\\_graddiss/1394](http://trace.tennessee.edu/utk_graddiss/1394)) [<https://perma.cc/3V7J-6KS8>]. The EPA is the only entity on a federal level that is required to use LCA in some form. On a state level, California is the only state "to have integrated life-cycle assessment as the basis for a statewide policy." *Id.* at 33. Other state programs incorporating LCA are voluntary. *Id.* at 29.

<sup>211</sup> Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 (codified as amended at 42 U.S.C. § 17001) (Title II, Subtitle A, Sect. 201(1)(B)(i), (H) (definition of lifecycle GGE)); see Sarah Dunham (Director, Transportation and Climate Division, EPA), *EISA Renewable Fuels Provisions & Transportation Fuels GHG Lifecycle Analysis* 14 (2008), [https://www.epa.gov/sites/production/files/2015-01/documents/2008\\_05dunham.pdf](https://www.epa.gov/sites/production/files/2015-01/documents/2008_05dunham.pdf) [<https://perma.cc/8YHB-ZBPX>].

<sup>212</sup> *Nat'l Res. Couns.*, SUSTAINABILITY AND THE U.S. EPA 73 (2011), <https://www.epa.gov/sustainability/sustainability-and-us-epa> [<https://perma.cc/23XP-HTB3>].

Despite acknowledging the benefits of LCA, EISA remains the only law requiring LCA in the United States.<sup>213</sup>

In the fashion realm, LCA is an individualized choice and one that is unfortunately much more prevalent in academic circles than on the factory floor.<sup>214</sup> LCA is not yet a mandatory course of action in most countries (nor is sustainable supply chain management generally).<sup>215</sup> Levi Strauss & Co. is the first company to begin offering financial incentives to suppliers in developing nations who partake in environmental performance reviews and adhere to LS&Co.'s sustainability benchmarks.<sup>216</sup> Offering such financial incentives is one way to make LCA more prevalent in the apparel industry without resorting to mandatory regulations. As a whole, fashion companies and brands need to take a closer look at their supply chains, engage all stakeholders who take part in the supply chain, and conduct analyses to learn where improvements should be made. Identifying the particular stages in the life cycle that have the greatest environmental effects is the first step to devise solutions for a more sustainable future. Moreover, engaging in LCA studies produces raw data by which companies can evaluate processes and materials. Transparency within fashion supply chains is severely lacking and LCA is an advantageous tool to overcome

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<sup>213</sup> Reed, *supra* note 210, at 29. Some argue that mandatory reporting would diminish the value of LCA as a "knowledge tool." EUROPEAN ENVIRONMENT AGENCY, *supra* note 199, at 27. Others say LCA can easily be corrupted to justify "practically anything in sustainability." Paul Hohen, *The coming of age of Life Cycle Assessment?*, THE GUARDIAN (Nov. 19, 2012), <https://www.theguardian.com/sustainable-business/blog/coming-interest-life-cycle-assessment> [<https://perma.cc/4SEJ-XFPD>]. Europe, on the other hand, has a much more robust interest in promulgating LCA, as evidenced through the European Commission's European Platform on Life Cycle Assessment. See generally EUR. COMMISSION, JOINT RESEARCH CENTRE: EUR. PLATFORM ON LIFE CYCLE ASSESSMENT, <http://eplca.jrc.ec.europa.eu/> [<https://perma.cc/Z5JF-7237>] (last visited Jan. 11, 2019).

<sup>214</sup> KOZLOWSKI ET AL., *supra* note 10, at 9.

<sup>215</sup> Subramanian Senthilkannan Muthu, *LCA of cotton shopping bags*, in HANDBOOK OF LIFE CYCLE ASSESSMENT (LCA) OF TEXTILES AND CLOTHING 283 (Subramanian Senthilkannan Muthu ed., 2015).

<sup>216</sup> Press Release, The World Bank Group's International Finance Corporation and Levi Strauss & Co. Reward Garment Suppliers for Stronger Labor, Environment, Health and Safety Performance (Nov. 4, 2014), [http://levistrauss.com/wp-content/uploads/2014/11/IFC\\_LSCO\\_Tiered-GTSF.pdf](http://levistrauss.com/wp-content/uploads/2014/11/IFC_LSCO_Tiered-GTSF.pdf) [<https://perma.cc/BLK5-PNVF>]. LS&Co. partnered with the World Bank Group's International Finance Corporation in 2014 to offer lower interest rates on financial capital to suppliers who "score higher on LS&Co.'s Terms of Engagement (TOE) assessments, which measure labor, health and safety, and environmental performance." *Id.* In such a competitive market, offering lower interest rates is a valuable incentive to push suppliers to adapt more sustainable and ethical practices while at the same time increase their productivity. *Id.*

the insufficiency of data availability. LCA is also a crucial resource in industry efforts to implement sustainability through design.

*B. Designing for Regeneration*

While the raw materials and manufacturing phases may be the most obvious starting points for reconstruction, recent diagnoses of the garment life cycle indicate that the consumer usage and disposal phases are actually the most environmentally disruptive stages of the clothing life cycle.<sup>217</sup> The prevailing view within the fashion industry, however, has largely been to leave these last stages to consumers' discretion, imprudently overlooking the creator's own ability to control what happens at the end-of-life stage.<sup>218</sup> Many in the industry agree that utilizing best design practices (and spending time developing them) is the most advantageous and logical way to minimize environmental impacts and plan for regenerative use rather than landfill disposal.<sup>219</sup> Utilizing design as a weapon against waste proliferation is also a critical component of the circular production model, which is "restorative and regenerative by design."<sup>220</sup>

Some estimates indicate that more than \$500 billion is lost every year because of "under-utilised clothes and the lack of recycling."<sup>221</sup> If the fashion industry were to rethink design, some studies predict almost a \$200-billion-per-year upside to the global economy, as well as a fundamental change in the speed at which the industry pollutes.<sup>222</sup> There are numerous approaches fashion companies can adopt to improve the longevity and usefulness of apparel. Ultimately, the threefold objective of sustainable design is to attain higher resource efficiency, reduce the creation of virgin materials, and use innovative design to responsibly sustain and recreate value in material already created.<sup>223</sup> Industrial circles have categorized these approaches as the "five-Rs: recycle, reuse, reduce, re-design

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<sup>217</sup> KOZLOWSKI ET AL., *supra* note 10, at 4.

<sup>218</sup> *Id.* at 11.

<sup>219</sup> BLACK, *supra* note 12, at 44; KOZLOWSKI ET AL., *supra* note 10, at 9; Caniato et al., *supra* note 133, at 667; Chun-Jen Chung & Hui-Ming Wee, *Green-component life-cycle value on design and reverse manufacturing in semi-closed supply chain*, 113 INT. J. PRODUCTION ECONOMICS 528, 529 (2008); see UNIVERSITY OF CAMBRIDGE INSTITUTE FOR MANUFACTURING, WELL DRESSED? THE PRESENT AND FUTURE SUSTAINABILITY OF CLOTHING AND TEXTILES IN THE UNITED KINGDOM 11 (2006).

<sup>220</sup> ELLEN MACARTHUR FOUNDATION, *supra* note 160, at 122, 126.

<sup>221</sup> *Id.* at 36.

<sup>222</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 18.

<sup>223</sup> Pal, *supra* note 140, at 128.

and re-imagine.”<sup>224</sup> These five practices work to “close the forward chain material loop” by fostering an interconnectedness between a garment’s end-of-life and its new beginning.<sup>225</sup>

Reducing implies “source reduction” and “waste prevention,” essentially planning to use less in the manufacturing stage to decrease environmental impacts.<sup>226</sup> Designers can purposefully choose raw materials and manufacturing processes that have lower environmental impacts at the design stage.<sup>227</sup> Nudie Jeans, for example, are produced with 100% organic cotton that decreases water usage by 91%, energy usage by 62%, and global warming potential by 46%.<sup>228</sup> All Patagonia products use lower-impact materials, from TENCEL® lyocell and hemp, to recycled wool and recycled polyester made from plastic bottles.<sup>229</sup>

Recycling involves collecting used materials to break them down into raw materials for new products.<sup>230</sup> For example, Evrnu is a recently launched company that has developed new technology to convert cotton garment waste into fresh fiber.<sup>231</sup> T-shirts and jeans destined for the landfill are recovered and turned into liquid to be transformed into entirely new, pure fiber.<sup>232</sup> Moreover, Evrnu’s processes are completed with 98% less water than it takes to grow virgin cotton and 90% less carbon dioxide emissions than manufacturing polyester.<sup>233</sup> Designers then determine how to use the fiber and can feel confident knowing they are using recycled and environmentally friendly materials.<sup>234</sup> Technology companies like Evrnu

<sup>224</sup> Strähle & Müller, *supra* note 34, at 13. Redesigning and reimagining are the more creative of the five-Rs, as they directly involve the artistic abilities of the designer and therefore involve added value. *Id.* Traditionally, the focus has been on the first Rs, but advances in technology have allowed designers to be more inventive, placing a new emphasis on the last two Rs. Richard Anthony, *Zero Waste International Alliance/GBCI Zero Waste Advisory Committee, Zero Waste: The Smart Approach to Resource Management* 24 (2017), <http://usgbc-sd.org/resources/Documents/Zero%20Wste%20%20intro%20and%20focus%20on%20rules%20and%20large%20venues%20gbc%20sd%202017%20pdf.pdf> [<https://perma.cc/3B4H-WYT4>].

<sup>225</sup> Pal, *supra* note 140, at 128.

<sup>226</sup> Strähle & Müller, *supra* note 34, at 14.

<sup>227</sup> KOZLOWSKI ET AL., *supra* note 10, at 9.

<sup>228</sup> *This is Nudie Jeans*, NUDIE JEANS CO., <https://www.nudiejeans.com/page/this-is-nudie-jeans> [<https://perma.cc/HZ39-9Y4X>] (last visited Jan. 11, 2019).

<sup>229</sup> *Materials & Technologies*, PATAGONIA, <http://www.patagonia.com/materials-tech.html> [<https://perma.cc/5XQY-QW78>] (last visited Jan. 11, 2019).

<sup>230</sup> Strähle & Müller, *supra* note 34, at 13.

<sup>231</sup> *Evrnu Fiber Technology*, EVRNU, <https://www.evrnu.com> [<https://perma.cc/626Q-2U3E>].

<sup>232</sup> *Technology: Giving You, and the Planet, the Edge*, EVRNU, <https://www.evrnu.com/technology> [<https://perma.cc/626Q-2U3E>] (last visited Jan. 11, 2019).

<sup>233</sup> *Id.*

<sup>234</sup> *Id.*

are crucial to reducing the millions of pounds of textile waste that are discarded each year.<sup>235</sup>

Instead of creating “planned obsolescence,” designers have the ability to create and plan for future use, prolonging the lifespan of a garment and requiring less production in the long run.<sup>236</sup> Designers can recapture disposed-of garments through take-back schemes, choosing to break the garments down into raw materials, resell them as second-hand products, or reenvision a second use. Nudie Jeans encourages customers to return their used jeans to their Repair Shops, where they are washed, repaired, and put back out to be purchased as second-hand products.<sup>237</sup> H&M launched its take-back initiative in 2013 and estimates that it has gathered 15,888 tons of textiles, according to its 2016 Sustainability Report.<sup>238</sup> Fashion companies can initiate take-back programs with the help of solutions providers like I:Collect (“I:CO”) that work with retailers to close the material loop, reduce waste, and reprocess raw materials.<sup>239</sup>

Designers can also refashion disposed-of garments to a new purpose, achieving several more rounds of use.<sup>240</sup> Eileen Fisher, for example, has taken back 800,000 pieces of clothing since 2009 through its Renew program.<sup>241</sup> The returned garments are refurbished or made into “one-of-a-kind designs” for repurchase through Renew’s exclusive store.<sup>242</sup> Eileen Fisher is a classic example of upcycling, an approach that works hand-in-hand

<sup>235</sup> *Opportunity: By Working Together, We Can Win Together*, EVRNU, <https://www.evrnu.com> [<https://perma.cc/YW9Q-NA44>] (last visited Jan. 11, 2019).

<sup>236</sup> *Introduction*, CLOSE THE LOOP: A GUIDE TOWARDS A CIRCULAR FASHION INDUSTRY, <https://close-the-loop.be/en/phase/5/design> [<https://perma.cc/W43M-T7XK>] (last visited Jan. 11, 2019). See *infra* note 310 for a more detailed description of planned obsolescence.

<sup>237</sup> *This is Nudie Jeans*, NUDIE JEANS CO., <https://www.nudiejeans.com/page/this-is-nudie-jeans> [<https://perma.cc/7277-KTYJ>] (last visited Jan. 11, 2019).

<sup>238</sup> H&M, *supra* note 205, at 123.

<sup>239</sup> *Building Textile Circularity: A Leading Global Solutions Provider*, I:COLLECT GMBH, <http://www.ico-spirit.com/en/company/> [<https://perma.cc/D43L-E39X>] (last visited Jan. 11, 2019). I:CO collects clothing and footwear in more than sixty countries. I:CO works in collaboration with SOEX, a German company founded in 1977 on the very principles of “re-wear, re-use, re-cycle, and re-search.” *About Us—Philosophy*, SOEX, <https://www.soex.de/en/about-us/philosophy/> [<https://perma.cc/LTC8-6JWW>] (last visited Jan. 11, 2019). SOEX collects, processes, recycles, and trades apparel and footwear, contributing to “waste reduction and resource conservation in the used textile and shoe segment.” *Company*, SOEX, <https://www.soex.de/en/company/> [<https://perma.cc/8WN8-7FB6>] (last visited Jan. 11, 2019). Companies like SOEX offer the technology and resources that are necessary to make recycling and reuse a successful reality.

<sup>240</sup> Strähle & Müller, *supra* note 34, at 14.

<sup>241</sup> *Our Story*, EILEEN FISHER RENEW, <https://www.eileenfisherrenew.com/our-story> [<https://perma.cc/5FNA-Q3VS>] (last visited Jan. 11, 2019).

<sup>242</sup> *Id.*

with slow fashion principles.<sup>243</sup> Upcycling “creates something new and better from the old or used or disposed items . . . [It] results in a unique sustainable and handmade product.”<sup>244</sup> Other apparel companies reimagine, creating value in textile waste that would otherwise be thrown away. tonlé, for example, is a fashion company that takes factory scraps and incorporates them into garment designs while also turning the scraps into yarn for future garments.<sup>245</sup>

As a very viable solution to the environmental problems faced by the fashion industry, eco-design considers “not only aesthetical, trend and fashion issues, but also the production process, logistics, the use and maintenance of textile items and finally the recycling or disposal of the product.”<sup>246</sup> It complements LCA in that it also exemplifies a holistic way of approaching apparel production, yet picks up where LCA leaves off by offering specific sustainable solutions. Moreover, design ties in with the broader theme of circularity, which prioritizes redevelopment and rejuvenation over obsolescence and disposability.<sup>247</sup> Instead of needlessly creating waste and valueless clothing, fashion companies should invest in reclaiming the very materials they put out into society and maintain extended responsibility to lessen the detrimental effects of overproduction.

### C. *Changing Consumer Norms*

Utilizing life-cycle analysis and apparel design are two effective ways fashion companies can combat excessive environmental disruption and waste proliferation. However, changing usual business practices is only half of the solution. It is easy to point to apparel manufacturers as the obvious culprits, since the environmental effects of any manufacturing

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<sup>243</sup> Jasmin Malik Chua, “Remade in the U.S.A.” Brings Eileen Fisher Closer to a Closed-Loop Economy, *ECOUTERRE* (Aug. 2, 2016), <https://inhabitat.com/ecouterre/remade-in-the-u-s-a-brings-eileen-fisher-closer-to-a-closed-loop-economy/> [<https://perma.cc/YT55-M45V>].

<sup>244</sup> Thilak Vadicherla et al., *Fashion Renovation via Upcycling*, in *TEXTILES AND CLOTHING SUSTAINABILITY: RECYCLED AND UPCYCLED TEXTILES AND FASHION 4* (Subramanian Senthilkannan Muthu, ed., 2017).

<sup>245</sup> *About: zero-waste*, TONLÉ, <https://tonle.com/pages/zero-waste> [<https://perma.cc/8HYM-4BR6>] (last visited Jan. 11, 2019). Another clothing company that values textile waste is Pure Waste. Pure Waste garments are made solely from textile waste that has been transformed into 100% recycled fabric. PURE WASTE: 100% RECYCLED TEXTILES, <https://purewastetextiles.com/purewastetextiles/> [<https://perma.cc/LR7Y-STQ4>] (last visited Jan. 11, 2019).

<sup>246</sup> Kabukcu & Ensari, *supra* note 111, at 13.

<sup>247</sup> *Origin of the concept ‘circular fashion,’* CIRCULAR FASHION (GREEN STRATEGY), <https://circularfashion.com/circular-fashion-definition/> [<https://perma.cc/4EPW-5NXL>] (last visited Jan. 11, 2019).



processes are more readily calculable. Much of the sustainable fashion debate tends to focus on directing creators to maintain accountability for the garments they produce. While doing so is a step in the right direction, it consequently obscures the fundamental role consumers play in the sustainability conversation. In the prevailing linear model, production and consumption are inextricably linked through the simple economics of supply and demand. Though it may seem as though the fashion industry dictates what is and is not in style, “[t]he needs of the end consumer define the development direction for the whole industry.”<sup>248</sup> As a whole, the industry’s consumer base has much more power than it realizes, power that can shift the current paradigm of the fashion industry.

There are many factors undermining the prospective strength of consumers, which could collectively spur the adoption of sustainable fashion practices across the entire fashion industry. One of the main issues is a general lack of knowledge pertaining to the environmental effects of clothing production and usage, which in turn affects where consumers decide to purchase their clothes and in what amounts.<sup>249</sup> Part of the reason is the lack of transparency from fashion companies themselves, fueled by unfamiliarity with their own supply chains.<sup>250</sup> If companies do not make information available for consumers to base their choices on, consumers cannot make educated decisions. But an even more profound issue is the fact that “consumers do not think of the pollution in clothes production, because they do not see clothes as polluting goods.”<sup>251</sup> Whereas the general populace can agree that plastic bags are “bad” for the environment and take steps to limit their use, the same cannot be said for clothing, despite the fact that clothing production has more far-reaching environmental impacts.<sup>252</sup> Part of this conundrum is explained by the fact that clothing, as a material need, never goes out of style.<sup>253</sup> However, this need has capitulated to overconsumption, evidenced by fast fashion’s strong grip on the industry.<sup>254</sup> Consumers may see cheap clothing, but not the very real environmental costs associated with their bargains.<sup>255</sup> It is also

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<sup>248</sup> Księżak, *supra* note 130, at 56.

<sup>249</sup> Kozłowski, *supra* note 112, at 9.

<sup>250</sup> See *supra* Section II.A.

<sup>251</sup> NIKOLAY ANGUELOV, THE DIRTY SIDE OF THE GARMENT INDUSTRY: FAST FASHION AND ITS NEGATIVE IMPACT ON ENVIRONMENT AND SOCIETY 161 (2016).

<sup>252</sup> *Id.* at 161–62.

<sup>253</sup> FLETCHER, *supra* note 20, at 120 (discussing clothing as being associated with “physical or functional needs, with sheltering, shielding and protecting”).

<sup>254</sup> *Id.* at 161.

<sup>255</sup> *Id.* at 130.

argued that individuals do not perceive a “personal investment” in clothing in the same way individuals view food (which enters the body) or makeup (which seeps into the skin), which also stifles consumer activism.<sup>256</sup>

Another factor is the plethora of “green” terminology within the fashion industry.<sup>257</sup> Terms like “green,” “ecological,” and “sustainable” are used in a company’s branding and marketing strategies to attract consumers interested in purchasing lower-impact clothing.<sup>258</sup> Yet these are often empty terms that lack actual evidence to support them, therefore creating confusion and inaccuracy.<sup>259</sup> From a consumer’s perspective, it is difficult to wade through the sea of “eco-terms” to determine whether a garment is actually produced with environmental impacts in mind.<sup>260</sup> Hand-in-hand with this issue is choosing to market sustainable fashion as a trend rather than a complete systems change.<sup>261</sup> While some argue that piggybacking off current trends is a conversational starting point to engage consumers, doing so may obscure the true aim of sustainable fashion and instead make the movement appear transitory.<sup>262</sup> For example, catchphrases like “green is the new black” make sustainable fashion seem more like a trend and not a revolutionary redefinition of production and consumption.<sup>263</sup>

Despite the issues that presently weaken consumer power, industry members agree that consumer engagement is the key to transforming the industry and facilitating sustainable practices.<sup>264</sup> According to the 2017 *Pulse of the Fashion Industry*, companies say the leading barrier to environmental progress is a low consumer willingness to pay a premium

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<sup>256</sup> Andrea Cheng, *The Problem with Fashion Brands that Call Themselves ‘Sustainable,’* FASHIONISTA (Apr. 28, 2017), <https://fashionista.com/2017/04/sustainable-fashion-brands-problems> [<https://perma.cc/6DPU-Z5EN>]. Another weakness is the lack of an explicit connection between clothing and health. Ashoka, *supra* note 135. While what we ingest may have a more obvious personal impact at first blush, the fact remains that what we put on our skin has just as much of an impact. *Id.* Most consumers lack the information, and therefore the knowledge, to make the connection. *Id.*

<sup>257</sup> Thomas, *supra* note 25, at 528.

<sup>258</sup> *Id.* at 530.

<sup>259</sup> ANGUELOV, *supra* note 251, at 161.

<sup>260</sup> Beard, *supra* note 113, at 450. Some have even joked, “It’s like you need a PhD in sustainability to go shopping.” Cheng, *supra* note 256.

<sup>261</sup> *Sustainable Fashion Is Not A Trend*, ANKURA, <https://www.ankurabrand.com/sustainable-fashion-is-not-a-trend/> [<https://perma.cc/7NSF-U5XD>] (last visited Jan. 11, 2019).

<sup>262</sup> FLETCHER, *supra* note 20, at 161.

<sup>263</sup> Friedman, *supra* note 25.

<sup>264</sup> BLACK, *supra* note 12, at 18; MUTHU, *supra* note 15, at 22; KOZLOWSKI ET AL., *supra* note 10, at 4; Książak, *supra* note 130, at 56.

for sustainable products.<sup>265</sup> Matching sustainability with affordability is still a work in progress,<sup>266</sup> but this response speaks to a much larger matter: fashion companies respond to consumer demand. There is an alarming disconnect concerning the sustainable fashion conversation between fashion companies and their customers.<sup>267</sup> While the demand for sustainability has come to the forefront in other industries, many consumers do not realize the necessity for sustainability in the fashion and apparel industries, do not feel any responsibility to take action, or are unsure how to engage in more sustainable behavior when it comes to clothing.<sup>268</sup> How can this disconnect be resolved?<sup>269</sup>

One proposal is utilizing eco-labels as a signal to inform consumers of sustainably produced garments.<sup>270</sup> Recent decades have seen the growth of “conscious consumerism” and a desire from consumers to know more about the products they are purchasing, so as to minimize environmental impacts.<sup>271</sup> While studies show that this same desire has not materialized

<sup>265</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 35.

<sup>266</sup> Unfortunately, cost adversely affects consumer demand for sustainably produced fashion and thus producer willingness to invest in such practices. Susan & Yves Gagnon, *Eco-Fabrics: Balancing Fashion and Ideals*, in FUTURE FASHION: WHITE PAPERS 45 (Leslie Hoffman ed., 2007). “[U]ntil regulation forces all producers to meet [environmentally friendly] practices,” consumers may have to bite the bullet. *Id.* Technological scalability was a key theme of the 2017 Copenhagen Fashion Summit. Industry members agreed that a major challenge is implementing processes that are economically feasible and complement a company’s long-term business goals. Copenhagen Fashion Summit, *Live-stream for Copenhagen Fashion Summit*, YOUTUBE (May 11, 2017), <https://www.youtube.com/watch?v=sefi2mcqCBo> [<https://perma.cc/294Z-TAZ3>]. Industry members also agreed that stakeholder collaboration to find scalable solutions—bringing together academics, policymakers, and producers—is the easiest way to develop the technology to make sustainable production a reality. *Id.* A common belief in the sustainable fashion community is “[s]ustainability should not necessarily be a competitive advantage for anybody.” Lyndsay McGregor, *Real Change Requires Fewer but Better Sustainability Initiatives*, RIVET (May 16, 2017), <http://rivetandjeans.com/real-change-requires-fewer-but-better-sustainability-initiatives/> [<https://perma.cc/MUA6-ZQ62>].

<sup>267</sup> See KOZLOWSKI ET AL., *supra* note 10, at 4.

<sup>268</sup> D’Souza, *supra* note 140, at 68; Ashoka, *supra* note 135; Kim Y. Hiller Connell & Joy M. Kozar, *Environmentally Sustainable Clothing Consumption: Knowledge, Attitudes, and Behavior*, ROADMAP TO SUSTAINABLE TEXTILES AND CLOTHING 45 (Subramanian Senthilkannan Muthu ed., 2014).

<sup>269</sup> For the purposes of this Note, I will examine only a few options available to fashion companies, but this is by no means an exhaustive list.

<sup>270</sup> Kabukcu & Ensari, *supra* note 111, at 14.

<sup>271</sup> *An Overview of Ecolabels and Sustainability Certifications in the Global Marketplace*, CORP. SUSTAINABILITY INITIATIVE: NICHOLAS INST. FOR ENVTL. POLICY SOLUTIONS: DUKE U. 11 (Jay S. Golden ed., 2010).

as strongly in the realm of sustainable fashion,<sup>272</sup> it is likely the case that a company's inability to communicate the actual size of its environmental footprint is the root cause.<sup>273</sup> Individuals have the power to influence sustainable fashion through their purchasing decisions, but currently, individuals cannot make purposeful decisions without knowing the real impacts of the industry.<sup>274</sup> Creating accurate eco-labels, therefore, works hand-in-hand with life-cycle analysis and other impact measurement tools.<sup>275</sup> An initial issue is developing a standardized certification for a fashion eco-label, which harkens back to an absence of a standardized definition of sustainable fashion.<sup>276</sup> While regulatory bodies, such as the United States Department of Agriculture, certify whether food is organic in the United States by ensuring compliance with set standards, there is no such body in the fashion industry.<sup>277</sup> As a result, self-regulation has taken center stage.

In the textile industry, there are numerous standards and certifications available to manufacturers that ensure certain processes are adhered to, which alert the purchaser to a fashion company's commitment to the environment and thus influence the purchaser's ultimate decision.<sup>278</sup> A well-known textile standard is the Global Organic Textile Standard ("GOTS"). GOTS-certified products must contain a minimum of 70% organic fibers, meet certain toxicological criteria, and comply with various ecological and social criteria depending on the manufacturing stage involved.<sup>279</sup> The organization's 2016 report indicated a 21% increase in the number of GOTS-certified entities worldwide, a total of 4,642 entities, which indicates companies are now thinking twice about sustainable production.<sup>280</sup> Some certifications pertain to manufacturing processes.

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<sup>272</sup> Ting-yan Chan & Christina W.Y. Wong, *The consumption side of sustainable fashion supply chain: Understanding fashion consumer eco-fashion consumption decision*, 16-2 J. OF FASHION MARKETING & MGMT: AN INT'L. J. 3, 195 (2012).

<sup>273</sup> CORP. SUSTAINABILITY INITIATIVE; NICHOLAS INST. FOR ENVTL. POLICY SOLUTIONS; DUKE U., *supra* note 271, at 12.

<sup>274</sup> *Section 1: Introduction*, SUSTAINABLE FASHION, WHY NOW?, *supra* note 10, at 5.

<sup>275</sup> Chan & Wong, *supra* note 272, at 195.

<sup>276</sup> D'Souza, *supra* note 140, at 68; *see supra* Part II.

<sup>277</sup> Cheng, *supra* note 256.

<sup>278</sup> *Standards, Certifications (and other schemes and initiatives)*, FUTURELEARN, <https://www.futurelearn.com/courses/sustainable-fashion/0/steps/13562> [<https://perma.cc/U3QQ-YYGF>] (last visited Jan. 11, 2019).

<sup>279</sup> *The Standard*, GLOBAL ORGANIC TEXTILE STANDARD: ECOLOGY AND SOC. RESP., <http://www.global-standard.org/the-standard.html> [<https://perma.cc/927Q-RX98>] (last visited Jan. 11, 2019).

<sup>280</sup> *Ecology and Social Responsibility, Annual Report 2016*, GLOBAL ORGANIC TEXTILE STANDARD 1 (2016).

The Swiss bluesign® system, for example, offers a suite of resource and supply chain management tools designed to “reduce the impact on people and on the environment, ensure responsible use of resources and guarantee the highest level of consumer safety.”<sup>281</sup> bluesign® works to eliminate harmful substances and environmental risks from the beginning of the production process<sup>282</sup> and focuses on resource conservation.<sup>283</sup>

Other eco-labels pertain to fashion design. An example is Redress, an NGO created in Hong Kong in 2007 that works to reduce textile waste and move the industry towards a more circular model of production.<sup>284</sup> One of its projects is “R Cert,” a standard for recycled textile clothing “that guarantees that brands recycled their own ‘factory fresh’ textile waste into their own recycled textile clothing.”<sup>285</sup> Brands that display the R Cert logo must use a minimum of 20% recycled fibers and maintain supply chain transparency.<sup>286</sup> Each garment that displays the R Cert hangtag has a unique QR code and TRACK code, which allows a customer to access recycling information specific to the garment.<sup>287</sup>

Overall, utilizing eco-labels complements a fashion company’s branding strategy, how it wishes to be perceived in the market in relation to its competition.<sup>288</sup> Through eco-labels, a fashion company signals its dedication to sustainable production to prospective consumers who consider environmental performance in their purchasing decisions.<sup>289</sup> Accurate and standardized eco-labels also serve to dispel the consumer skepticism that surrounds “unverified environmental claims” and correspondingly

<sup>281</sup> *bluesign® system: Managing inputs, Responsible actions online brochure*, BLUESIGN®, [https://www.bluesign.com/home/approach/downloadFile/6/brochure/flyer\\_bluesign-system\\_EN.pdf](https://www.bluesign.com/home/approach/downloadFile/6/brochure/flyer_bluesign-system_EN.pdf) [<https://perma.cc/ZPN7-EZHD>] (last visited Jan. 11, 2019).

<sup>282</sup> *Industry: bluesign® system: Input Stream Management*, BLUESIGN®, <https://www.bluesign.com/industry/bluesign-system/input-stream-management.html> [<https://perma.cc/7SQW-XBF2>] (last visited Jan. 11, 2019).

<sup>283</sup> *Industry: bluesign® system: Principles*, BLUESIGN®, <https://www.bluesign.com/industry/bluesign-system/principles.html> [<https://perma.cc/TN28-M5VW>] (last visited Jan. 11, 2019). Brands that use bluesign® include Patagonia, The North Face, L.L. Bean, Lululemon, and Nike. *bluesign® System Partners*, BLUESIGN®, <https://www.bluesign.com/index.html> [<https://perma.cc/TN28-M5VW>] (last visited Jan. 11, 2019).

<sup>284</sup> *About: Our Story*, REDRESS, <https://www.redress.com.hk/about/story/> [<https://perma.cc/9FZL-66KZ>] (last visited Jan. 11, 2019).

<sup>285</sup> *R Cert: Track Your Recycled Clothing’s Journey from Factory to Retail*, REDRESS, <https://www.redress.com.hk/r-cert/track> [<https://perma.cc/S3X2-52RD>] (last visited Jan. 11, 2019).

<sup>286</sup> *Id.*

<sup>287</sup> *About the R*, REDRESS, <https://www.redress.com.hk/r-cert/about> [<https://perma.cc/T7J3-WYZ2>] (last visited Jan. 11, 2019).

<sup>288</sup> CORP. SUSTAINABILITY INITIATIVE: NICHOLAS INST. FOR ENVTL. POLICY SOLUTIONS: DUKE U., *supra* note 271, at 10.

<sup>289</sup> *Id.* at 12.

strengthen consumer willingness to pay more for verifiable, sustainably produced garments.<sup>290</sup> A global survey conducted in 2014 found that “[f]ifty-five percent of global online consumers across sixty countries say they are willing to pay more for products and services provided by companies that are committed to positive social and environmental impact.”<sup>291</sup> There is certainly a desire for eco-fashion, but the communication disconnect between fashion companies and consumers has caused slow growth.

Pre-retail consumer engagement, through the acquisition of reliable information, is one way for consumers to understand the significant role they play in the sustainable fashion conversation. But it is just as important, if not more so, to foster consumer engagement in the post-retail phase, particularly because the usage and disposal phases have been shown to create the greatest environmental impacts.<sup>292</sup> Educating consumers of the devastating impacts of everyday laundering and dry cleaning is a great starting point. Slow fashion brand Zady, for instance, offers a detailed description of the impacts of washing and drying, appliance and detergent selection, and dry cleaning, and encourages customers to be mindful of the way they care for their clothes.<sup>293</sup> This is extremely valuable information that many consumers are not aware of. Educating consumers about the post-consumption options available to them and making consumers feel as though they are part of the sustainability equation is another approach, and one of the easiest ways to further the goals of circularity.<sup>294</sup>

An example of this is sponsoring take-back programs, like those mentioned in subsection B.<sup>295</sup> In 2013, The North Face launched Clothes the Loop, a solutions-based program in partnership with I:CO, to keep apparel and footwear out of the landfills.<sup>296</sup> Consumers drop off unwanted

<sup>290</sup> *Id.* at 11.

<sup>291</sup> *Global Consumers Are Willing to Put Their Money Where Their Heart Is When It Comes to Goods and Services from Companies Committed to Social Responsibility*, NIELSEN (June 17, 2014), <http://www.nielsen.com/us/en/press-room/2014/global-consumers-are-willing-to-put-their-money-where-their-heart-is.html> [<https://perma.cc/Y4SF-6HXE>].

<sup>292</sup> MUTHU, *supra* note 15, at 22.

<sup>293</sup> *The New Standard: Care for Our Clothes*, ZADY, <https://zady.com/thenewstandard?Care%20for%20our%20Clothes> [<https://perma.cc/NJ9T-AULU>] (last visited Jan. 11, 2019).

<sup>294</sup> Copenhagen Fashion Summit, *Livestream for Copenhagen Fashion Summit*, YOUTUBE (May 11, 2017), <https://www.youtube.com/watch?v=sefi2mcqCBo> [<https://perma.cc/7PXD-SB34>]. Maintaining that connection with the consumer, particularly after the usage phase, ensures that the garment returns to the producer, who can then take advantage of the design options available to reduce postconsumer waste. *See supra* Section II.B.

<sup>295</sup> *See supra* Section II.B.

<sup>296</sup> Wendy Gabriel, *The North Face Continues to Clothes the Loop*, RECYCLE NATION (Jan. 19, 2017), <https://recyclenation.com/2017/01/north-face-continues-to-clothes-loop/> [<https://perma.cc/3Q TZ-V3AS>].

items at The North Face Retail or Outlet stores, which are then “sorted . . . and designated either to be worn again, repurposed, or recycled into raw materials.”<sup>297</sup> The customer also receives a \$10 reward toward any purchase of \$100 or more as a further incentive to recycle used clothing.<sup>298</sup> The North Face has received over 95,000 pounds of clothing and footwear since 2013.<sup>299</sup> However a fashion company decides to interact with its customers post-purchase, the main idea is to maintain a relationship so the customer is aware of her role in the move towards sustainable fashion and how collaboration in the post-retail phase furthers sustainability goals.<sup>300</sup>

A final proposal, and perhaps the most radical one, is altering the mindset of the consumer and, with it, the paradigm within which consumption is viewed.<sup>301</sup> In order to do so, “clothing” and “fashion” must be thought of as two separate concepts.<sup>302</sup> Clothing is a tangible, manufactured product.<sup>303</sup> Fashion is complex and tied to ideas of personhood, self-expression, and individuality.<sup>304</sup> It “links us to time and space and deals with our emotional needs.”<sup>305</sup> Together, clothing is the physical canvas upon which those needs are satisfied, which unfortunately comes at a high environmental price.<sup>306</sup> Fashion, by its very nature, is ever-changing and ephemeral and it is this constant change that fuels the industry.<sup>307</sup> Sustainable fashion and consumption may even seem like oxymorons, since fashion and consumption are predicated on societal and personal fluctuations of wants and needs.<sup>308</sup> Rhetoric may contradict, but that does not mean society is forever confined to its current unsustainable paradigms.

Today’s fashions are cheap and non-durable, driving individuals to consume more than necessary and creating non-erasable catastrophe

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<sup>297</sup> Kelly Eisenhardt, “*Clothes the Loop*” *Recycling: The North Face Way*, THE CORP. SOC. RESP. NEWSWIRE (CSRWIRE) (June 4, 2015), <http://www.csrwire.com/blog/posts/1584-clothes-the-loop-recycling-the-north-face-way> [<https://perma.cc/8JBR-WUHV>].

<sup>298</sup> *Clothes the Loop*, THE NORTH FACE, <https://www.thenorthface.com/about-us/responsibility/product/clothes-the-loop.html> [<https://perma.cc/W7QW-BLSX>] (last visited Jan. 11, 2019).

<sup>299</sup> *Id.*

<sup>300</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 57.

<sup>301</sup> See FLETCHER, *supra* note 20, at 73.

<sup>302</sup> *Id.* at 119.

<sup>303</sup> *Id.*

<sup>304</sup> Miguel Angel Gardetti, *Cubreme® and Sustainable Value Creation: A Diagnosis*, GREEN FASHION: VOLUME 1 4 (Subramanian Senthilkannan Muthu & Miguel Angel Gardetti eds., 2016).

<sup>305</sup> FLETCHER, *supra* note 20, at 119.

<sup>306</sup> *Id.* at 120.

<sup>307</sup> BLACK, *supra* note 12, at 17.

<sup>308</sup> *Id.*

in the process.<sup>309</sup> In business and economic circles, this is often referred to as “planned obsolescence.”<sup>310</sup> Consumption becomes robotic, void of meaningful relationships and awareness of impacts.<sup>311</sup> Conditioning consumers to feel as though they *need* that next T-shirt or pair of jeans, despite owning five other pairs that are barely worn, conceals the unfashionable truth behind clothing. Sustainable fashion challenges one to instead see the interconnectedness of fashion, how desires affect working conditions, wages, and the environment, instead of employing consumption as a means of identity formation and social conformity.<sup>312</sup> Doing so “will emancipate us from a submissive dependence on fashion.”<sup>313</sup>

In terms of consumption, this means fostering ideas of mindfulness, responsibility, and need-based behavior to replace the continual “get and dispose” mentality that encourages overconsumption and obsolescence.<sup>314</sup> Instead of focusing solely on “what’s ‘in’ this season,” consumers should stop and think of the very real consequences of the items in their shopping bags. Some believe changing consumer behavior is a limited endeavor.<sup>315</sup> Others say it is the lynchpin of sustainable fashion altogether.<sup>316</sup> Perhaps it is better to focus on the interdependent nature of consumers and producers, a “symbiotic relationship” where “consumers and apparel companies hold each other accountable for their actions,” instead of placing the lion’s share of accountability on just one player.<sup>317</sup>

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<sup>309</sup> KOZLOWSKI ET AL., *supra* note 10, at 1.

<sup>310</sup> *From planned obsolescence to circular thinking*, CIRCULAR FASHION (June 25, 2015), <https://circularfashion.com/from-planned-obsolescence-to-circular-thinking/> [<https://perma.cc/D9NZ-FKZJ>]. Planned obsolescence is exactly what it sounds like, “planned” meaning intentionally created and “obsolescence” meaning useless. *Planned obsolescence*, THE ECONOMIST (Mar. 23, 2009), <https://www.economist.com/news/2009/03/23/planned-obsolescence> [<https://perma.cc/JL62-7KD2>]. The obsolescence of a product is built into its design from the get-go, which forces consumers to purchase more once the product’s short life is up. *Id.*

<sup>311</sup> Gardetti & Torres, *supra* note 26, at 9.

<sup>312</sup> FLETCHER, *supra* note 20, at 125; Gardetti & Torres, *supra* note 26, at 9.

<sup>313</sup> *Id.*

<sup>314</sup> Jasmin Malik Chua, *Vanessa Friedman: “Driving Force of Fashion is Planned Obsolescence*, ECOUTERRE (May 2, 2014), <https://inhabitat.com/ecouterre/vanessa-friedman-driving-force-of-fashion-is-planned-obsolescence/> [<https://perma.cc/P4FG-JWEA>].

<sup>315</sup> KOZLOWSKI ET AL., *supra* note 10, at 4.

<sup>316</sup> Luz Claudio, *Waste Couture: Environmental Impact of the Clothing Industry*, 115-9 ENVIRONMENTAL HEALTH PERSPECTIVES, A449, A454 (2007) (“Consumer awareness about the fate of clothing through its life cycle may be the best hope for sustainability in the fashion industry.”).

<sup>317</sup> Connie Ulasewicz, *Fashion, Social Marketing, and the Eco-Savvy Shopper*, in SUSTAINABLE FASHION, WHY NOW?, *supra* note 10, at 36.



D. *Necessity of Policymaker Intervention If All Else Fails*

While many in the fashion industry would prefer self-regulation and self-imposed practices, it is entirely possible that government regulators will play a large role in the near future.<sup>318</sup> The *Pulse of the Fashion Industry* indicated that the second largest barrier to sustainability was missing regulations and policies.<sup>319</sup> Of the companies surveyed 24% agreed that the missing impetus of regulation played a role in the lack of environmentally sustainable practices.<sup>320</sup> Participants also ranked policymakers and regulators as the stakeholder group most influential in shaping their sustainability agenda.<sup>321</sup> However, because the fashion industry is such a globalized and fragmented industry, implementing standardized laws across all country borders poses clear problems. Regulations would need to be implemented on a country-by-country basis.

Opponents believe forced regulations may incentivize companies to avoid penalties by “focus[ing] on simply checking the boxes of disclosure rather than thinking through what their stakeholders care about most.”<sup>322</sup> Another wrinkle is materiality: not all companies face the same sustainability challenges or find the same list of indicators helpful from a policy perspective.<sup>323</sup> In light of these critiques, industry members are pushing for supportive regulation from the international community that “reinforces sustainability targets and incentivizes change,” as opposed to unilateral regulations that penalize and cripple financial resources.<sup>324</sup> A sustainable future is a future that individuals should *want* to pursue, not because the law dictates it, but because it is the most desirable outcome for all. As true as this view may be, it is also somewhat unrealistic in light of the simple profit-loss nature of business and its focus on the bottom line. If fashion companies refuse to enact policies of their own, it might be time for government regulators to consider setting standards within this industry.

A recent example of government intervention is Article 225 of France’s Grenelle II Act, promulgated in 2010 and implemented in

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<sup>318</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 106, 112.

<sup>319</sup> *Id.* at 36.

<sup>320</sup> *Id.*

<sup>321</sup> *Id.* at 35. For perspective, participants ranked consumers third, senior management fifth, and investors and shareholders in eighth place. *Id.*

<sup>322</sup> Eva Dienel, *Mandatory Reporting: BSR Debates the Pros and Cons of Requiring Companies to Report on Sustainability*, BUS. FOR SOC. RESP. (BSR) 1 (2010).

<sup>323</sup> *Id.* at 1–2.

<sup>324</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 106.

2012.<sup>325</sup> Grenelle II is hailed as “the strongest governmental mandate yet in support of sustainability reporting.”<sup>326</sup> Article 225 makes Grenelle II the most robust reporting law in the world, requiring “listed and unlisted companies with more than 500 employees and €100 million in revenue” to report on up to forty-two indicators spanning environmental, social, and governance categories.<sup>327</sup> These reports must also be verified by an independent, accredited third party for accuracy and conformity.<sup>328</sup> Grenelle II fosters transparency, data quantification, standardization, and issue-spotting among all industrial sectors and illustrates a concern for business performance that surpasses merely financial reporting.<sup>329</sup>

A study published in 2014 indicated that, as of 2012, the data obtained from Article 225’s mandatory reporting were far more systematic and accurate than data obtained under previous reporting regulations.<sup>330</sup> The 2014 study also indicated companies’ “goodwill and commitment [to] this new approach” and vast improvements in “the communication of extra-financial information,” which is very encouraging.<sup>331</sup> However, as of 2015, there are only eight countries with “a corporate responsibility reporting rate of 90 percent or above [and] mandatory reporting requirements” for extra-financial information: India, Indonesia, Malaysia, South Africa, UK, France, Denmark and Norway.<sup>332</sup> From a corporate social responsibility perspective, mandatory reporting is important because it fosters accountability, data collection, and overall consciousness, which in turn helps companies determine how to best address sustainability challenges. In the fashion industry, mandatory reporting would force

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<sup>325</sup> Elena Avesani, *The Grenelle II Act In France: A Milestone Towards Integrated Reporting*, ORACLE BLOGS: SUSTAINABILITY MATTERS (Oct. 28, 2013), <https://blogs.oracle.com/sustainability/the-grenelle-ii-act-in-france:-a-milestone-towards-integrated-reporting> [<https://perma.cc/C2KJ-GR3L>].

<sup>326</sup> *Id.*

<sup>327</sup> Jonathan Morris, *The Five W’s of France’s CSR Reporting Law*, BUSINESS FOR SOCIAL RESPONSIBILITY (BSR) 1, 3 (2012). Grenelle II has built on France’s 2002 New Economic Regulation, which had only applied to listed companies and mandated reporting on only thirty-two indicators. *Id.* at 2. Indicators are split into Environmental, Social, and Governance categories. *Id.* at 5–6. Examples of the forty-two indicators include sustainable use of resources, pollution and waste management, human rights, health and safety, and equal treatment. *Id.*

<sup>328</sup> *Id.* at 3.

<sup>329</sup> Idil Kaya, *The Mandatory Social and Environmental Reporting: Evidence from France*, 229 PROCEDIA: SOC. AND BEHAV. SCIENCES 206, 210 (2016).

<sup>330</sup> *Id.* at 212.

<sup>331</sup> *Id.*

<sup>332</sup> *Id.* at 207.

companies to analyze their supply chains, actually gauge the environmental impacts of each stage of the life cycle, and implement changes to reduce environmental chaos. Another example of possible government intervention is placing an “eco-tax” or “green tax” on new materials produced, which could incentivize companies to reuse materials, innovate to discover methods to recycle, and decrease the speed at which garments are manufactured.<sup>333</sup>

There is also a consensus that increased pressure from the international political community, combined with commercial collaboration from the industry and consumers, would most effectively foster sustainable fashion practices.<sup>334</sup> Such a combinatory approach is preferred and may be even more powerful than unilateral regulations alone.<sup>335</sup> Policymakers can incentivize change from a regulatory standpoint, but sustainable practices will become the new norm only once *all* stakeholders take collaborative action. Governments can offer subsidies for research and development or technological innovation, for example, or offer tax breaks to companies that use renewable energy and resources.<sup>336</sup> Or, combining with a consumer approach, governments can set standards for fashion eco-labels or require companies to utilize them.<sup>337</sup> Although it is argued that “where one firm takes the lead in one area, many others will follow,” this has not come to pass in the realm of sustainable fashion.<sup>338</sup> Fashion companies may need that extra push from regulators if they are to change their current production strategies and processes for the better.

## CONCLUSION

At the heart of the sustainable fashion debate is what Sandy Black terms the “fashion paradox”: determining how “to reconcile the transience and inherent obsolescence of fashion’s constant change with the imperatives of sustainability and social justice, and fashion’s economic importance with diminishing resources.”<sup>339</sup> This Note offers a framework approach to tackle this paradox and the environmental havoc it undeniably creates. While solutions to this issue are virtually unlimited, the four discussed in

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<sup>333</sup> UNIVERSITY OF CAMBRIDGE INSTITUTE FOR MANUFACTURING, *supra* note 219, at 71.

<sup>334</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 36.

<sup>335</sup> *Id.*

<sup>336</sup> *Id.* at 108.

<sup>337</sup> *Id.* at 109. A recent WWF survey indicated that 88% of the French population wants compulsory environmental labelling. Hohen, *supra* note 213.

<sup>338</sup> Beard, *supra* note 113, at 458.

<sup>339</sup> BLACK, *supra* note 12, at 18.

this Note form the bedrock for meaningful change. Above all, obtaining and publicizing information is the most effective way to further the goals of sustainable fashion and sustainable living in general. Information generates knowledge, knowledge generates discussion, discussion generates collaboration, and collaboration generates power. Now is the time to harness that power and strive collectively “for a world beyond next season.”<sup>340</sup> The sustainable fashion debate is one that extends far beyond the bounds of this Note, but it is my hope that this humble discussion has contributed to the continuing discourse surrounding sustainable fashion. In sum, to quote Vivienne Westwood, “Buy less. Choose well. Make it last.”<sup>341</sup>

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<sup>340</sup> GLOBAL FASHION AGENDA & THE BOSTON CONSULTING GROUP, *supra* note 4, at 111.

<sup>341</sup> News Agencies, *Vivienne Westwood: Everyone buys too many clothes*, THE TELEGRAPH (Sept. 16, 2013), <http://fashion.telegraph.co.uk/news-features/TMG10312077/Vivienne-Westwood-Everyone-buys-too-many-clothes.html> [<https://perma.cc/C8JH-QCB3>].

