

Article

"And Why Do You Worry about Clothes?" Environmental Ethics and the Textile Complex

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The production of textiles and apparel are among the most ancient industries in the world. They are two of the few consumer products mentioned in the Bible that are still in common use today. Our apparel binds us together inextricably to the earth in two ways: by allowing us to exist, shielding us from harsh conditions; and through the impact textile and apparel production methods has on the natural environment. It also binds us together socially and in powerful metaphorical ways as well.

Despite the fact that production methods have evolved, many key environmental issues still plague the textile complex at every stage of production, from fiber manufacturing through sewing and distribution. This paper examines the environmental issues throughout the textile and apparel industry and attempts to interpret them in a Christian environmentalist perspective. The textile complex illustrates how environmental issues that challenge any industry can be interpreted from an ethical, Christian perspective.

"And why do you worry about clothes? See how the lilies of the field grow. They do not labor or spin. Yet I tell you that not even Solomon in all his splendor was dressed like one of these. If that is how God clothes the grass of the field, which is here today and tomorrow is thrown into the fire, will he not much more clothe you, O you of little faith?"

— Matthew 6:28–30, New International Version

Clothing and textiles are two of the few consumer products mentioned in the Bible that are still as commonly used, with much of the same intent, today as in scriptural times. References to clothing and textiles are prominent throughout both the Old and New Testaments of the Bible. The first reference to clothing in the Bible occurs in Gen. 3:7: "Then the eyes of both

of them were opened, and they realized they were naked; so they sewed fig leaves together and made coverings for themselves" (NIV). The NIV has over three hundred references to the word "cloth" and its variations. These references take many forms. Several passages refer to proscriptive dictates on human's dress (Lev. 10:6, Deut. 22:5, 11; Eccles. 9:8), and prescriptive ones (Lev. 11:25; Num. 4:6–13; 8:21 and others) telling how clothing should or should not be worn and cared for. More interestingly, the Bible is full of symbolic imagery regarding clothing and its manufacturing process that underscores its importance in everyday life. Birth, life, and death are each likened to the making of cloth. In Ps. 139:13 ("... you knit me together in my mother's womb"), the beginnings of human life are compared to setting up a loom, with

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God as the weaver and the mother's womb as a loom. When Job (11:10) describes how quickly his life is passing, he uses the metaphor: "My days are swifter than a weaver's shuttle." And when Isaiah (38:12) writes of the end of life and of dying, he does so by comparing the process to how a weaver removes fabric from the loom: "... like a weaver I have rolled up my life; he cuts me off from the loom."¹

Despite the fact that textile and apparel production has undergone many changes and improvements, many key environmental issues still plague the industry at every stage of production, from fiber to fabrication and beyond.

Clothing also can represent God's relationship with humans. After Adam and Eve make fig-leaf loincloths for themselves, they distance themselves from their Creator. But by making and giving them "garments of skin" (Gen. 3:21), God then reaffirms a personal bond with them, while the gift of clothes from a common giver binds the couple together. The Bible shows at this early point that clothing is a necessity of life. Some people in biblical times felt that weaving skills were bestowed by God (Exod. 35:30-35), and the cloth maker responded to divine inspiration when weaving, so there was a spiritual connection between God and the clothing they produced. A seamless garment was thought to have an "endless warp" which represents unbroken threads of relationship and ancestry going all the way back to God himself. People believed that the endless warp transmitted a spiritual force, and to cut a seamless garment would refute this belief and displease God. This idea may be why in his Gospel the apostle John (19:23-24) thought it worthy of mention that Jesus' tunic at his crucifixion was seamless, but also why the soldiers declined to tear the garment, deciding instead to cast lots for it.²

In modern times, our clothing separates us from the earth and each other. Dress is unique to human beings, and distinguishes us from members of the nonhuman kingdom. One of the primary functions of dress is to provide a barrier between others and ourselves, permitting us to feel modest in the presence of other human beings. At the same time, our clothing binds us inextricably to the earth in two distinct ways. The first and most obvious is clothing allows us to exist in the world by shielding us

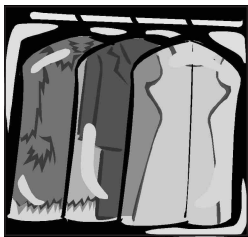
from the earth, including the elements, insects, and rough or abrasive plants. Technological advances in "performance apparel" permits humans to exist even in extreme living conditions. Apparel products today may have built-in sun protection factors and the ability to wick moisture away from the body. A second way in which clothing binds us to the earth is through the impact that textile and clothing production methods and retailing have on the natural environment. These issues affect our planet and the beings that inhabit it. Despite the fact that textile and apparel production has undergone many changes and improvements, many key environmental issues still plague the industry at every stage of production, from fiber to fabrication and beyond.

The goal of this paper is to provide (from a Christian environmental viewpoint) a comprehensive overview and critique of environmental problems at each stage of the production, consumption, and disposal process. This Christian environmentalist viewpoint is based on maintaining a community-centered focus from both the corporate and individual perspective. Corporations are responsible for the just treatment of the people who work for them and for the stewardship and natural preservation of communities in which they are located. Likewise, consumers are people who live in communities and their clothing choices (e.g., whether to dry clean or wet launder) are not isolated; they also have an impact on the community. Seeing the entire chain of events (from production through purchase, consumption, and disposal) in its entirety is important because, as Wendell Berry writes: "The significance—and ultimately the quality—of the work we do are determined by our understanding of the story in which we are taking part."³

This topic is of importance because comparably little attention is paid to the environmental impact of the textile complex relative to higher-profile industries that more obviously consume natural resources, such as oil and coal production. The numerous articles that do examine the environmental impact of the textile complex are narrow in scope and written from a secular viewpoint.⁴ Despite the current focus on the textile complex, this same process of analysis could be used for virtually any manufacturing industry to help Christians who are employed at such a company to make choices that will not force them to choose between their faith and their profession.

The Textile Complex Production Process and the Environment

The textile complex (see Figure 1) "refers to the industry chain from fiber to fabric, through end uses of apparel, interior furnishings, and industrial products."⁵ Several characteristics involved both in the production and consumption of textile products such as clothing, towels, and bedding make them unique from durable consumer



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goods such as refrigerators or washers and dryers. These differences include a lack of automation in apparel assembly, large water consumption, and a more rapid fashion cycle in comparison to durable goods.

The structure of the industry makes it unique as well. A great range of diversity in size and type of operations exists between plants. Some plants are small and perform a limited range of functions, such as spinning raw fiber into yarn or weaving yarns into unfinished fabrics, while other plants may be vertically integrated, handling the entire manufacturing process from raw fiber to finished fabrics ready for end use. This range means that production methods (even for similar fabrics) vary greatly among plants, which results in individualized pollution control as opposed to an industry-wide cooperative program.

A second defining characteristic of the structure of the textile industry is the geographic concentration of manufacturing locations. In the United States, the highest

concentration of textile and apparel manufacturing is in four southeastern states: North and South Carolina, Georgia, and Alabama. Although many domestic textile and apparel plants have closed in the last decade (e.g., in the years 1992–2002, the textile industry lost 220,000 jobs, or one-third of its workforce; and the apparel industry lost 400,000 jobs, or 40% of its workforce),⁶ the diversity in plant size and geographic concentration of manufacturers are also common to textile and apparel production in other countries.

The Production Process

The textile complex involves multiple manufacturers whose final product becomes the building block for the next production stage. The first stage of the production process is fiber manufacturing, which takes fibers from natural sources, such as cotton or wool, and uses them in their existing form, or converts products such as oil or wood into manufactured fibers such as polyester. The next stage is yarn production, where raw fibers are twisted to form yarn. Textiles are then pro-

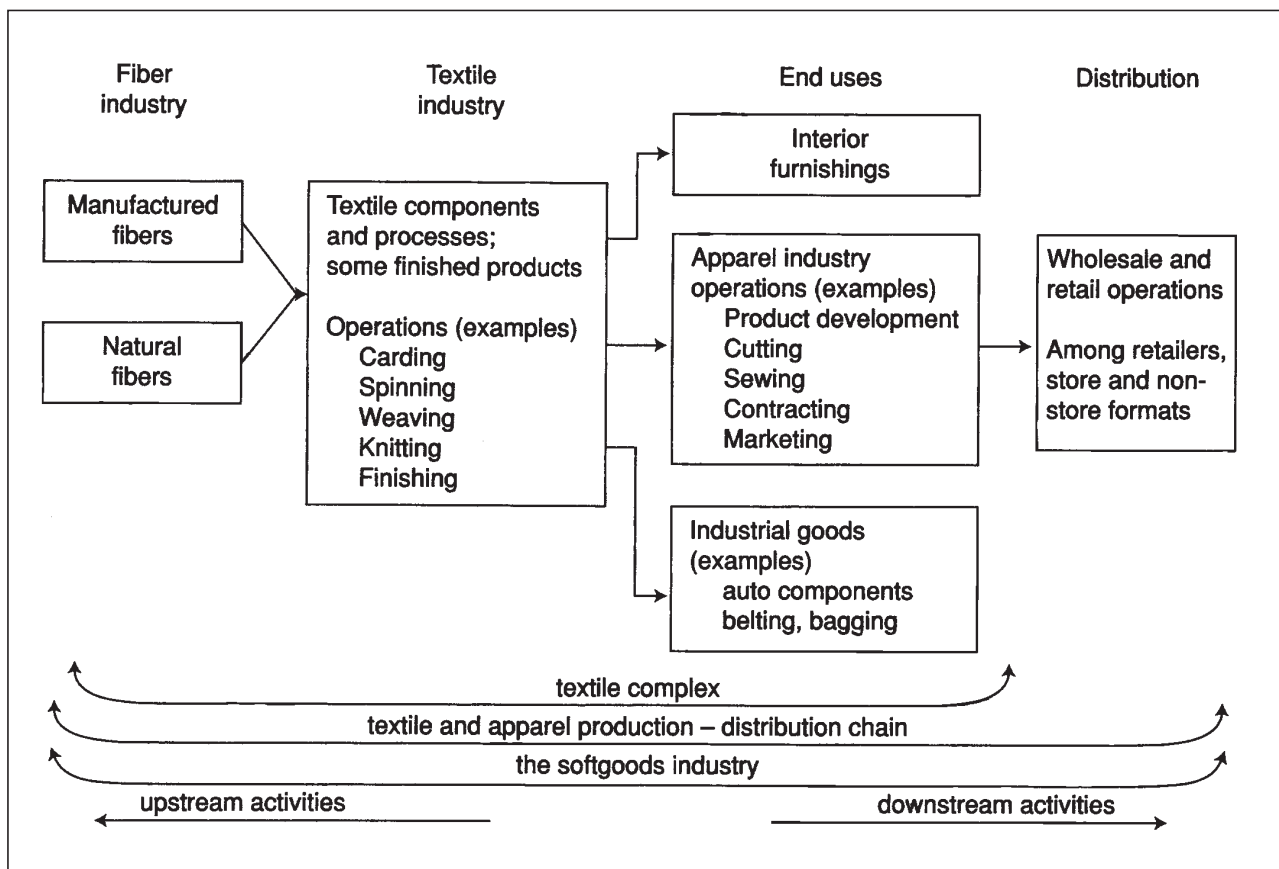


Figure 1. Diagram of the Textile Complex and Related Industries. From K. G. Dickerson, *Textiles and Apparel in the Global Economy*, 3rd ed. (Upper Saddle River, NJ: Prentice-Hall, Inc., 1999).

duced by taking yarns or fibers and connecting them using one of two main fabrication methods: weaving (for fabrics such as denim, oxford, or taffeta) or knitting (for fabrics such as tricot, jersey, and rib). After the textile is fabricated, the material is finished to impart certain performance properties such as resistance to water, stains, static, abrasion, or wrinkling. The final step in textile production is adding color to the fabric through various dyeing and printing methods. The finished fabric is then shipped to apparel manufacturers, where it is cut and sewn into garments for consumers to purchase in a retail environment. The relationship between the product and the planet does not end with manufacturing, however. The packaging methods of

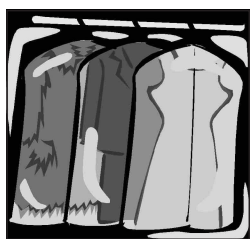
retailers, the amount of apparel consumers purchase, and the choice of garment care methods and disposal habits by consumers can further heighten the cumulative effect of textile and apparel products on the environment.⁷

Environmental Issues

A table identifying the impact negative environmental effects that may occur at each stage of the textile complex during the production process and beyond is provided in Table 1. These violations take many forms. They include land use issues such as overgrazing and water contamination from the cultivation and harvest of natural fibers such as cotton or wool, or worker health and safety issues from

Table 1. Environmental Challenges at Each Stage of the Textile Complex

Production Stage	Environmental Challenges
Fiber Production	<p>Natural fibers:</p> <ul style="list-style-type: none"> • Chemical use (for fertilizer, insecticide, growth control, harvest management, and cleaning) • Bioengineering (cotton) • Irrigation (cotton) • Soil erosion • Overgrazing and water contamination (wool) <p>Manufactured and Manufactured Cellulosic fibers:</p> <ul style="list-style-type: none"> • Oil consumption • Chemical processing • Harvesting of raw materials (trees) • Recyclability
Yarn Production	Fiber waste - mote (dust) together with short fibers, plant waste, soil, or other elements.
Textile Production	<p>Weaving:</p> <ul style="list-style-type: none"> • Water diversion rates (to power looms) • Energy consumption (to dry fabrics from water-jet looms) <p>Finishing:</p> <ul style="list-style-type: none"> • Water diversion rates • Energy consumption • Chemical processing <p>Dyeing and Printing:</p> <ul style="list-style-type: none"> • Release of dyes, pigments, and other chemicals containing color, salt, acids, and heavy metals into water systems
Apparel Production	<p>Waste production:</p> <ul style="list-style-type: none"> • Textile (from scraps after the pattern is cut out) • Paper (discarded patterns) • Bobbins (industrial-sized spools of thread) <p>Human Capital—sweatshops, community development</p>
Post-Production	<p>Retail:</p> <ul style="list-style-type: none"> • Energy consumption (transportation) • Landfill disposal (plastic garment bags and hangers) <p>Post-Purchase:</p> <ul style="list-style-type: none"> • Laundering (water use and energy consumption) • Dry-cleaning (use of perc) <p>Post-Consumption:</p> <ul style="list-style-type: none"> • Landfill disposal • Donation/Recycling



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the production of mote, a small particle of fiber that is the cause of "brown lung" among textile workers, to landfill consumption from discarding textile scrap waste and packaging materials. The chain does not end with purchase, however. The consumer's choice of whether to wet launder or dry clean and whether to discard their clothing into the landfill or alternately recycle or donate it to a charitable organization for reuse all contribute to the cumulative affect clothing and textiles have on the environment.

Biblical Concerns and Principles

Clothing is significant to humans. Clothing and textiles lie in close proximity to our God-given forms throughout our daily lives. They provide protection and a means of personal expression. The close relationship between clothing and textiles to humans and to the earth, as described in the introduction to this paper, was clear to the apostle Paul, who likens our bodies to a tent when he writes in 2 Cor. 5:1-4 (NIV):

Now we know that if the earthly tent we live in is destroyed, we have a building from God, an eternal house in heaven, not built by human hands. Meanwhile we groan, longing to be clothed with our heavenly dwelling, because when we are clothed, we will not be naked. For while we are in this tent, we groan and are burdened, because we do not wish to be unclothed but to be clothed with our heavenly dwelling, so that what is mortal may be swallowed up by life.

Uses of textile and apparel metaphors in describing the earth still are embraced today by modern-day theologians. For example, Steven Bouma-Predger uses the phrase "no evil woven into the warp and weft of creation," in his book, *For the Beauty of the Earth: A Christian Vision for Creation Care*. And Joseph Sittler writes that "light is a garment the deity wears and the heavens a curtain for his dwelling."⁸

Human beings are a part of nature, and clothing is one of the three basic necessities that allow us to exist in nature—a true gift from God. But it is precisely the ubiquity of clothing and textiles in our daily lives that has made us overlook the impact that our clothing choices have on the environment. Because it is a necessity, we forget that there

is a moral component to our clothing. It is easy to view extravagances such as designer apparel costing hundreds of dollars as wasteful. But, in fact, the type and amount of apparel we all consume and how we care for it and discard it after we are done have just as much impact on the environment as someone spending a great deal more.

The same may be said for the manufacture of clothing. Because clothing does not appear to have an obvious effect on the environment as something like coal mining, or to cause harm to someone in the way that guns can, and because clothing is a true necessity, some may think that there is no moral component associated with clothing manufacturing. Whatever production processes are necessary to produce clothing in this view are acceptable. This is simply not true. For example, textile and production has been shifted in the past to countries with less stringent environmental laws than the United States. It is important to remember that just because it is not illegal to pollute in these countries, it is not right. As Christians we answer to a higher power than the government of any country. Therefore, it is necessary to examine a set of principles that Christians can live by to ensure that all of their choices are moral, including the mundane ones such as clothing.

Authors have addressed environmental issues from a Christian perspective, looking at the role of both the individual and of industry as participating members of both natural and social communities. Bouma-Prediger describes a multi-faceted Christian ethic of care for the earth that may be adopted by consumers and corporations. The central focus of this ethic is recognizing and embracing the relationality that binds all creatures, human and nonhuman, to each other and to the earth and letting that be a guide for our decisions. By putting God first, and not considering humans to be separate from one another because of geographical distances, or separate from the creatures on the land and in the sea, we begin to take responsibility for the preservation and well-being of those relationships and should let that guide our decisions.⁹ For example, we as employers (and as customers benefiting from the products workers make) are as responsible for worker health and safety in far-off countries that may not have legal and

governmental protections for workers as we are for workers in our own town. As members of the same global community, our belief as God-centered Christians mandates it. Likewise, when companies select harmful dye or finishing methods we are as responsible as they are for the marine life where the wastewater will be discarded, and for the people that use that water.

Another example would be to consider the impact that landfilling textile scrap waste has on communities, as opposed to recycling these materials into products like fiberfill for pillows. Although recycling textile waste requires more effort, textiles break down slowly in landfills and may have chemical runoff from dyes and finishes. Just because we cannot see this happening where we live does not make it acceptable. As a member of the community in which its goods are produced, corporations have a responsibility to make choices that will benefit all members of the community. Consumers can get informed about their purchases as well, and with this knowledge support those manufacturers who recognize these relationships and strive to maintain them.

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The association between industry and the environment has long been a contentious one. Textile and apparel companies throughout history have been less notorious for their environmental infractions than for their human rights violations. The first textile barons were men of principle who cared for their employees (who were mostly women), giving them a livelihood as well as providing them with lodging, entertainment, and a moral upbringing. But as larger profits stood to be earned from working employees long hours, a new class of exploitative mill owners replaced these men.¹⁰ This exploitation has continued in developing countries and even in the United States where underground sweatshops are still run in places like Los Angeles. The argument has been made that environmental and human rights abuses are just a necessary step in a country's road to development, but it does not have to be so. The industry's constant search for low wages is another way in which apparel manufacturing can hurt communities. For example, the VF Jeanswear company recently announced that it would be laying off 1,035

employees from its El Paso, TX plant in November 2004. This announcement was just the latest blow to apparel manufacturing in El Paso, which had declined from over 21,000 jobs in 1993 to less than 4,000 in 2003. In many cases, the terminated employees do not have a high school equivalency degree and are not fluent in English, making their job prospects bleak.¹¹

In *Community on Land*, Janel M. Curry and Steven McGuire provide an extensive history of the corporation as an entity and its effect on the social order and environment. They link the rise of corporate power with the concomitant declining power of the individual, resulting in a distancing of the relationship between nature and individuals. This weakened relationship between individuals and nature makes it necessary for the government to step in and limit the impact that individuals and corporations have on the environment. The authors advocate using the land itself as a guide to rediscovering identity, community, and the concept of what it means to live in a place, enabling environmental problems to be viewed with a complete perspective.¹² If corporations recognize the importance of their role within the community and take responsibility for the impact their decisions make on that community, their decisions might be very different. I am using the textile complex to illustrate how easily this may be done.

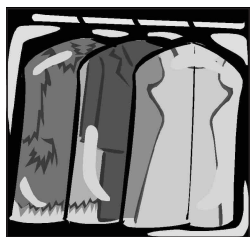
Agricultural essayist Wendell Berry is one of the relatively few writers who has conscientiously combined Christian concern for the environment with industrial policy.¹³ He states that the call is clear for industry to avoid profit at the expense of the environment because the world does not belong to us but to God. It is our responsibility as his followers to be good stewards of the land. He says:

Obviously, "the sense of the holiness of life" is not compatible with an exploitive economy. You cannot know that life is holy if you are content to live from economic practices that daily destroy life and diminish its possibility.¹⁴

Berry also believes it is entirely possible for humans to live and work in the world and use their work as an opportunity to honor God, not separate themselves from him. This work does not have to be religious work; it can be of any type at all. "To work without pleasure or affection," he writes, "to make a product that is not both useful and beautiful, is to dishonor God, nature, the thing that is made, and whom-ever it is made for."¹⁵

Available Alternatives

Environmentally favorable alternatives that do not conflict with Christian ideals exist for manufacturers to employ at each stage of the textile complex. At the fiber manufacturing level, *organic* or *transition* cotton grows without the use of synthetic commercial pesticides or fertilizers, but costs approximately twice as much as conventional cotton due



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to the lower crop yield and processing requirements. *Naturally-colored cotton* may be grown in shades of brown, rust, red, beige, and green and sells for the same price as organic cotton. Synthetic fiber manufacturers have environmentally friendly alternatives as well. Some types of nylon carpet may be recycled by converting the carpet fiber to caprolactam, a nylon 6 raw material, for reuse. Polyester fibers made from recycled soda pop bottles are popular with consumers and may be used in apparel and carpeting.¹⁶

Yarn manufacturers can reduce and recycle their waste. Waste from the yarn spinning process is now available to manufacturers who can use it to manufacture yarns for use in apparel, home furnishings, and industrial products. Improvements in machinery have reduced inefficiencies and improved quality of fabric production, resulting in less wasted fabric. Textile manufacturers also have environmentally-friendly options. Finishing plants now employ systems to control air and water pollution and hazardous waste disposal, and to reclaim and remove contaminants before releasing water back to municipal systems through membrane technology and reverse osmosis. In addition, biodegradable finishes are gaining in popularity. Natural dyes exist for fabrics such as cotton, wool, and silk. Lower-sulfide sulfur dyes use significantly less salt, and dyes that use iron instead of chromium are preferable for safety. Water treatment methods have improved. Color in water systems may be treated through hyperfiltration, electrochemical methods, ozonation, and chemical coagulation. Use of liquid carbon dioxide or supercritical carbon dioxide instead of water in dyeing polyester is under research. This requires less energy and waste treatment, uses no salt or other chemicals, and is recyclable and nontoxic.¹⁷ If corporations used Christian care ethics as the basis of their business decisions, these alternatives would be industry standards instead of merely options.

The American Textile Manufacturing Institute (ATMI), the foremost trade group of the textile industry, has recognized the importance of a commitment to the environment. It bestows its Encouraging Environmental Excellence (E3) award to members of the textile and apparel industry that demon-

strate a concern for the environment by meeting a set of criteria established by the group. The program has received praise from the Environmental Protection Agency (EPA), which has called ATMI one of the most proactive trade associations on pollution prevention. The EPA also has stated that members of the E3 program have done an outstanding job of reducing waste and improving the environment.¹⁸

Some manufacturers are gaining a competitive advantage by rethinking the entire manufacturing cycle. Reducing the amount of materials used in each step, and especially in packaging, shipping, and display increases profits and reduces environmental impact. One example of this is the technology for reducing paper consumption. This could easily be employed by the textile industry through the elimination of paper markers (patterns) which are no longer needed in many cases because pattern cutting is done by computers using lasers rather than my hand. This savings could in turn be passed along to the customer.

By experimenting with alternative corporate structures, some manufacturers are experiencing great success. One such alternative structure involves leasing products instead of purchasing them outright. For example, the Dow Chemical Company in addition to leasing organic solvents to clients also will recover the solvent after it is applied and take it away. Another example is Interface, a carpet manufacturer, that instead of manufacturing carpet the traditional way makes carpet "tiles" which may be replaced individually as needed. This requires fewer yards of carpet consumed (because only the worn out spots have to be replaced). And, like the Dow Chemical example, it clearly links the manufacturer of the product with its ultimate disposal.¹⁹

Social concern within the textile complex extends to human capital as well. Some members of the apparel industry have experimented with alternative corporate structures to insure that corporate profits do not supersede the well-being of their employees. American Apparel, a Los Angeles-based manufacturer and retailer of T-shirts and other active-wear, is an example. The company states that it does not use subcontractors or sweatshops, and that all of its products are

made in its own plant located in downtown Los Angeles, where sewers can earn more than \$15 per hour. The company's 1,300 employees also receive access to health insurance for children (whether or not they are documented residents), dental insurance for under \$1 per week, and free on-site massages.²⁰

Profit from a commitment to the environment is not limited to manufacturers. The Swedish retailer IKEA made a commitment to waste reduction and the use of environmentally sustainable materials in the manufacturing of their products. This environmental perspective called "The Natural Step" or "TNS" is now a core part of the IKEA corporate philosophy and is central to all product design.²¹

What Christians Can Do

In order for employees of corporations to act according to Christian principles, they must consider the corporation itself to be a member of nature and in particular a member of the community in which it does business, accepting all of the accompanying responsibilities with these relationships. Corporations must hold a commitment to justice for people and for nature on a par with their financial commitments to shareholders. A corporation is no less a steward of the environment than an individual is, and it has the power to impact numerous lives simultaneously, making the need for conscientious, ethical executives all the more dire.

Individuals have multiple opportunities to make choices in their textiles and apparel consumption, use, and disposal that can greatly reduce their impact on the environment. A key component of making environmentally correct choices is to adopt a Christian view of personhood—each one of us is a part of nature and a member of a community, not just a consumer. The choice that makes the most direct impact is simply to purchase fewer clothes. The average American owns seven pairs of blue jeans. Most of those pairs likely have only minute variations, but American consumers have adopted the belief that they must have variety in their wardrobe, so they continue to buy. The result is people amass garments that they do not wear often, that sit at the back of the closet while only one or two "favorite" pairs (which maybe all that someone may actually need) are worn frequently.

Related to this is the temptation to follow fashion. Our culture is one that disposes of clothing not because it is no longer functional, but because we perceive it to look dated. This is because apparel companies create "planned obsolescence" by slightly altering garment colors, cuts, and embellishments each season. Because of the rapid production cycle and mass production, it is possible for consumers (particularly younger consumers) to purchase merchandise cheaply with the intent of only wearing it one season, or as long as a trend lasts.²² If consumers

purchased only high-quality, classic apparel and replaced garments only when they became worn-out, consumption would drop dramatically. Christians need to remember that our identities are not defined by any of our material possessions, especially our clothing. To put staying constantly "in fashion" above our duty of being good stewards of the earth is to dishonor God.

A key component of making environmentally correct choices is to adopt a Christian view of personhood – each one of us is a part of nature and a member of a community, not just a consumer.

Purchasing clothing that may be laundered instead of dry cleaned is another option. The problems associated with the dry cleaning solvent PERC (tetrachloroethylene) far outweigh the water consumption of home laundering. A knowledge of textiles would help consumers, as well, because many garments labeled "Dry Clean Only" may actually be laundered safely at home. How clothing is handled after it is no longer wanted also has an impact. In addition to donating textiles and clothing to charity, some communities offer textile and clothing recycling programs along side more standard recycling programs. Taking advantage of these options keeps used clothing out of landfills.

Consumers may also choose to support companies that are known for ethical treatment of employees or those that make care for the environment a priority. Resources exist for consumers to determine which companies are compliant with the US Department of Labor's (DOL) monitoring program. Currently, the DOL lists thirty-four companies on its "Trendsetters" list, which represent 125 apparel lines and several thousands of retail stores across the country.²³

Conclusion

It is apparent that it is possible for textile and apparel manufacturers and consumers to be both environmentally and socially ethical by adopting a Christian viewpoint for their business practices and usage habits. Doing so means recognizing the relationships between humans, non-humans, and the earth in the locations where clothing is made, purchased, and worn (i.e., just about everywhere). Adopting this viewpoint would not be in conflict with non-Christian cultures. Many of the manufacturing components of the textile complex are currently being done

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in the Far East, where the majority of residents are not members of the Christian faith. However, in many cases the headquarters of these plants are in the United States, and since the values espoused in this article do not conflict with any of the tenets of these other religions, parent companies can adopt environmentally responsible policies without causing a moral dilemma for their workers.

The textile complex has frequently been in the spotlight in the past several years, primarily for the sweatshop issue, but some limited attention has been paid to the environmental impact of textile and apparel production. This attention is likely to grow, particularly in the future as the countries where production is done improve their standard of living. In some cases, the companies involved might never have considered the total impact of their current actions on God's good earth. In accordance with Christian principles, participants in the textile complex should demonstrate a greater concern for the environment and the relationships between its human and nonhuman inhabitants. It is possible for the textile complex to exist in contemporary society in harmony with Christian values and the earth. ♦

Acknowledgment

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Notes

- ¹See Ferdinand Deist, *The Material Culture of the Bible: An Introduction* (Sheffield, England: Sheffield Academic Press, 2000), 217–20.
- ²John J. Pilch, *The Cultural Dictionary of the Bible* (Collegeville, MN: Liturgical Press, 1999), 14–20.
- ³Wendell Berry, *Sex, Economy, Freedom & Community* (New York: Pantheon Books, 1993), 109.
- ⁴Examples of articles that look at the environmental impact of the textile complex include Lorynn Divita and Betty Dillard, "Recycling Textile Waste: An Issue of Interest to Sewn Products Manufacturers," *Journal of the Textile Institute* 90, no. 2 (1999): 14–26; T. Domina and K. Koch, "The Textile Waste Lifecycle," *Clothing and Textiles Research Journal* 15, no. 2 (1997): 96–102; Maureen Grasso, "Recycled Textile Fibers: The Challenge for the Twenty-First Century," *Journal of the American Association of Textile Chemists and Colorists* 27 (1995): 16–20; Maureen Grasso, "Recycling Fabric Waste—The Challenge Industry," *Journal of the Textile Institute* 87, no. 1 (1996): 21–30; J. G. Ibanez, M. M. Singh, and Z. Szafran, "Color Removal of Simulated Wastewater by Electrocoagulation-Electroflotation," *Journal of Chemical Education* 75, no. 8 (1999): 1040–1044; and S. J. Lin and Yih F. Chang, "Linkage Effects and Environmental Impacts from Oil Consumption Industries in Taiwan," *Journal of Environmental Management* 49, no. 4 (1997): 393–411.

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