



Sustainability in the Sportswear Sector: Problems, Progress, and Potential Improvements

Benjamin W. Lee*

Seoul International School, 15 Seongnam-daero 1518 beon-gil, Sujeong-gu, Seongnam-si, Gyeonggi-do, 13113, South Korea

* Corresponding author email: benwglee09@gmail.com

Abstract

As one of the biggest consumers of the world's water and producers of emissions, the textiles industry has come under fire for sustainability issues in recent years. Sportswear firms stand out from their peers as big users of synthetic fibers like polyester and nylon produced from crude oil which can shed harmful microfibers into local waterways. They also have found themselves under fire for poor working conditions at supplying factories and their use of chemicals to achieve various desirable characteristics of sporting clothes and footwear has also been found to have negative consequences for wider society.

While firms have sought to address their issues and many have committed to lowering emissions and improving practices in the coming years, much remains to be done to achieve their goals. Clearly, economic factors affect what firms can do to improve sustainability in a competitive market when consumers are sensitive to price differences between the likes of Nike and Adidas.

Nevertheless, this essay argues that more could be done even in the face of cost constraints. Given that young shoppers tend to be more mindful of sustainability issues and sportswear will be marketed to these shoppers in the years to come, firms would do well to listen to them.

Keywords

Sustainability in the sportswear sector; Sustainability issues; Sportswear manufacturer; Textile industry

Introduction

Despite associating themselves with healthy lifestyles and elite performance, sportswear brands have been criticized over the years for manufacturing in ways that are harmful to the health of the environment and the well-being of their own workers. While such criticisms are not unique in the wider clothing and fashion sector, Nike, Adidas and Puma and their peers find themselves subject to some of the strictest judgements. This is because their products must typically deliver some level of technical performance, comfort and suitability for specific sports and activities. At the same time, the wide range of sportswear manufacturers active around the world means firms are competing not just on quality but also on price. Firms must therefore find ways of competing on several fronts simultaneously. This often means using a range of materials and chemical treatments in addition to the usual dyeing and weaving of everyday or even luxury clothing. The final product is often produced at least partly from synthetic materials like polyester or nylon, which are made through processes involving the burning of hydrocarbons like oil, and which can shed microplastic pollution when washed.

Sustainability issues do not start and end in the field of environmental science, however. Firms often outsource production of running shoes and sports clothing to factories in countries where labor laws and worker rights vary. Big brands have been scrutinized in recent years over links to forced labor and unsafe practices in some of these factories. This has led to many opening themselves up to external audits as well as taking internal action. Despite such efforts, accusations from the likes of labor and human rights groups continue to suggest there is work to be done.

In this essay, I examine sustainability issues amongst sportswear manufacturers in 5 sections. The next section outlines the big issues with sustainability as they relate to fossil fuel use, water consumption and pollution, waste, and social responsibility issues. The third section then covers what firms in the sportswear industry are already doing. Section 4 discusses the economics of the industry as it relates to sustainability issues. Section 5 then offers thoughts on what more could be done by producers and consumers to up their own game on sustainability. The final section concludes.



Why this matters

Although sustainability is a topic with which all industries must contend, sportswear has particularly visible issues that are not easily remedied. Not only is it a large consumer of hydrocarbons and water, but also the sportswear industry is a large producer of waste chemicals.

What elevates the environmental impact of sportswear relative to other forms of textiles is the particularly strong use of synthetic fibers – the production of which tends to require hydrocarbons – and use of blended fabrics and materials. Blends are hard to separate and can therefore be difficult to recycle. Consequently, sportswear manufacturers are less able to re-use existing materials to meet demand and must rely on producing goods from raw materials. This ultimately inhibits improvement in the sustainability practices of sportswear firms.

The industry also employs an estimated 60 to 70 million people worldwide, whose labor is responsible for 2% of the world's total economic output (*Garments and Apparel*, 2024). Sportswear firms have a duty of care to ensure these workers have safe and clean working environments and are paid fairly.

Sustainability in sportswear: what are the issues?

Fossil Fuels

One of the big issues facing the sportswear industry is its link to fossil fuels. According to the UN, the broader fashion industry accounts for as much as 8% of global greenhouse gas emissions (Mishra, 2025). A significant driver of this is the use of synthetic fibers like polyester in the manufacture of textiles.

Polyester is essentially a plastic made from polyethylene terephthalate (PET), which is derived from crude oil. According to Textile Exchange, polyester accounts for the majority of the world's manufactured fibers each year. In 2024, it accounted for almost 6 in every 10 tons of all fiber produced worldwide. Total production of polyester per person is projected to rise significantly by 2030 (*Materials Market Report*, 2025).

Mass production of polyester – alongside other synthetic materials, for which production is energy intensive – has negative spillover effects on the environment and wider society. A recent study by Han et al. (2026) estimated that global emissions from plastics increased 170% in the decade to 2022 and textiles were one of the biggest drivers of this growth.

This is a sore point for sportswear in particular. More than many other strands of the fashion and textiles industry, sportswear manufacturers use synthetic materials including polyester, spandex, and rubber in producing clothing and footwear. This is of course by design, as such materials allow manufacturers to offer consumers more breathable clothing, water proofing, and other desirable properties of sportswear.

For example, running shoes are typically comprised of synthetic materials like rubber soles for grip and polyester upper components to support airflow (Fashion for Good, 2026). Adidas makes the latest Real Madrid soccer jerseys out of polyester, just as they and their competitor Nike do for other sports teams' jerseys they sell at large scale around the world.

Not only are sportswear manufacturers liable to have outsized carbon footprints from manufacturing processes, but also they rely on global shipping networks to deliver goods from production sites to consumer markets. Nike's biggest market in terms of revenue is North America, followed by Europe, the Middle East and Africa (*Nike's Revenue by Region 2026*, 2026). However, the vast majority of Nike's goods are produced in China and Southeast Asia (Williams, 2019). Transporting goods between regions typically requires the burning of hydrocarbons to power ships and trucks.

Despite this, shipping is considered relatively more energy efficient than the production process. This is at least the case when it comes to Nike's main source of global revenues, footwear. Researchers at MIT found that a typical pair of running shoes requires more than 360 processing steps to assemble, many of which are carbon-intensive. Furthermore, with more than a third of production based in China, where coal is still widely used in electricity production, powering factories may be more carbon intensive than it would be in countries where cleaner energy is more prevalent. Consequently, more than two-thirds of the carbon associated with running shoes is estimated to originate from their manufacturing processes (Chu, 2013).



It is not just the producers that contribute to carbon emissions. The washing, tumble drying and ironing of a cotton t-shirt account for 48% of its carbon footprint. This suggests consumers make a significant contribution to the total emissions associated with washable sportswear goods. Cutting the tumble drying and ironing would reduce the footprint by an estimated 37% (*The True Cost of Sportswear*, n.d.).

Water

The production of materials depends in part on water. For natural materials like leather and cotton, water is used in farming or crop growing. For the former, not only is water consumption a factor in raising animals, but also the tanning process is water-intensive. For the latter, irrigation may be needed, particularly when rainfall is insufficient. There are also potential concerns with run-off water carrying chemicals like pesticides contaminating local water systems.

Further along the supply chain, industrial processes required to make sportswear goods often need water which is sourced from lakes or rivers near to production sites. Industrial water consumption can reduce the quantity and flow of the local water source, potentially affecting local populations and wildlife dependent on it. This tends to be more of an issue with the production of natural fibers like wool and cotton, rather than synthetic fibers. For instance, in order to make one cotton shirt, 2,500 liters of water are needed but to make a single polyester dress requires less than half this quantity (*Fashion Business Water Usage*, n.d.).

There are other processes required in the manufacture of sportswear which can also be problematic for firms and the environment. Dyeing and bleaching garments can see wastewater returned to local water sources carrying harmful chemicals. Indeed, in the past, some of the biggest concerns over the environmental effects of sportswear manufacturing have come from wastewater pollution created through chemicals bleeding in to local water systems (Hubbard, n.d.).

Although industry makes an effort to improve water efficiency and reduce negative spillover effects to local water systems caused by the production of goods, the consumption of them can also cause negative externalities.

When washing sportswear made from synthetic fibers, garments can shed small fibers. These microplastics that may escape from the likes of polyester and nylon sportswear in the washing machine can then end up in waterways. Typical domestic washing machines lack filters capable of trapping these tiny fibers and they can escape wastewater treatment, potentially ending up in drinking water and affecting ecosystems. Research has found that up to 40% of microfibers can escape from water treatment facilities into lakes, rivers and oceans (Hartline et al., 2016). Even when microfibers are removed during water treatment, they can end up in 'sewage sludge'. After processing it to remove pathogens, this mixture of solid materials can end up as fertilizer which may then contaminate crops when added to them.

Dyes, flame retardants, anti-wrinkle agents and other chemical treatments applied to sportswear have been found to be toxic (Weis, 2024). Some chemicals found in clothing are linked to cancer (Wicker, 2023). Microfibers may even combine with other harmful contaminants in water like pesticides and metals, creating even more harmful compounds. Consequently, when passed into local water systems, these harmful substances contaminate the food chain. Fish and other aquatic animals consuming microfibers end up as food for other animals and even humans.

The Center for Environmental Health (CEH) in California has sent legal notices to numerous sportswear brands after tests in recent years indicated high levels of Bisphenol A (BPA). According to the Mayo Clinic, BPA exposure may be linked to high blood pressure, type 2 diabetes and cardiovascular disease. Studies also suggest BPA exposure can affect children's behavior and affect the brain (Mayo Clinic Staff, 2023). CEH has issued notices to the likes of Under Armour, New Balance and Skechers to name just a few, citing concerns with BPA in products including sports bras, athletic shirts and shorts, and leggings (Difrisco, 2022).

Despite its potentially harmful effects, the human body can at least break down BPA relatively quickly. Other chemicals often found in sportswear take far longer to break down. Per- and polyfluoroalkyl substances – known as PFAS – have been dubbed 'forever chemicals' due to their resistance to disintegration. Although they have only been in existence since the 1940s, it is believed that they can last for thousands of years. According to Johns Hopkins University, PFAS can affect reproductive systems, affect development, and increase cancer risk among other harmful effects (Coulson, 2024).



Sportswear companies like Nike, Adidas, and others have used PFAS in their goods to make fabrics resistant to sweat, water, and stains (Tan & Islam, 2026). However, these companies found themselves the target of Greenpeace protests in the 2010s over the use of PFAS in sports and leisure apparel. Famously, the environmental charity staged what looked like a soccer match near the Adidas head office in Germany in 2014, with ‘players’ wearing red paint on their feet and displaying the words ‘detox our feet’.

Although sportswear companies, including Adidas, publicly stated their intentions to eliminate PFAS and other hazardous chemicals, recent tests suggest they are still present in a range of sportswear goods, including sports bras made by the likes of Nike, Adidas, and Under Armour (Gribkoff, 2022).

Even more recently, Lululemon found itself in trouble in Texas. The state’s Attorney General launched an investigation into whether the company misled buyers of its activewear products. The investigation will focus on whether PFAS are present in their materials and if so, whether this contradicts the company’s branding messages around wellness and sustainability (Texas Office of the Attorney General, 2026). Lululemon denies these claims, saying it eliminated PFAS from its clothing in 2023.

There is much that scientists still have to learn about PFAS, which are common not just in sportswear but also a wide range of consumer goods. However, it is estimated that 98% of Americans have traces of PFAS in their blood, and 200 million Americans are served by water systems in which PFAS are known to be present (Amarello, 2020). This is not a problem exclusive to the USA of course, and the prevalence of PFAS worldwide suggests the vast majority of us likely have this in our blood. A study even found that babies were exposed to a significant amount of PFAS before birth (Liu et al., 2026).

Waste

Around the world, almost two-thirds of clothing goes to landfills, and a quarter of fashion waste is incinerated, according to recent estimates. An estimated 60% of new clothing will be in landfills within a year of its purchase (Hall, 2024). In the USA alone, more than 9 million tons of clothing and footwear were delivered to landfills in 2018 (the most recent year for which data is available). In the same period, less than 20% of that amount was recycled (United States Environmental Protection Agency, n.d.).

Recycling rates remain low for many materials used to make sportswear. Although polyester does relatively better than other materials like elastane (3%), nylon (2%), and cotton (1%), the percentage of new polyester production from recycling actually fell steadily from almost 15% in 2021 to just 12% in 2024 (the latest year for which data is available). Despite a rise in the total quantity of polyester made from recycled material, total production has grown by almost 30% over this period, outpacing the rise in recycled production.

Given the challenges and relatively low rates of recycling sportswear, significant amounts of sportswear goods – much of it made from plastic-based materials – goes to landfills. It can sit there for up to 200 years as it does not decompose like natural materials (Plummer, 2026). Even when it does break down, it can end up as microplastics that contaminate soil and water, to the detriment of ecosystems. PFAS may also be present in these materials, which could leach into soil and affect ecosystems for generations to come.

Nevertheless, as sustainability has increasingly affected consumption and production decisions in sportswear and textile markets more broadly, producers have sought to meet demand for their products with more sustainable production. Recycling materials is not straightforward though. It can be a labor-intensive process which may require the use of chemicals, which itself poses problems for workers and the local environment (*Materials Market Report*, 2025).

Another challenge in making more use of recycled material is sportswear producers’ use of blended fibers. Separating individual fibers from blends can be technically challenging and costly. Chemical finishes may also be applied to clothing which can create further complications in encouraging more of a circular economy for sportswear goods.

Social sustainability

Sportswear firms have faced criticism in the past for outsourcing production to factories with poor working conditions and sometimes using child labor. After facing huge public pressure to address labor conditions, in 1999 Nike founded the non-profit Fair Labor Association to monitor and train companies



in safe working practices (The World, 2016). Today, Nike is joined by the likes of New Balance, Adidas, New Era and Arena as accredited members.

However, sportswear firms such as these continue to be accused of being complicit in labor issues amongst suppliers. In 2020, the Australian Strategic Policy Institute (ASPI) published findings from its investigation into the use of forced labor of Uyghur Muslims forcibly relocated outside of their native Xinjiang to other parts of China. ASPI identified 82 companies that either directly or indirectly benefit from the use of such workers. Amongst them were Nike, Adidas, Fila, Puma and Skechers. ASPI's report claimed that Uyghur workers in a Qingdao factory made Nike shoes during the day before attending a night school with a curriculum matching that of 're-education camps' in Xinjiang (Xu et al., 2020). In 2022, researchers found traces of cotton in Adidas and Puma t-shirts directly from Xinjiang. Both companies denied they had links to the region.

In the last few years, Adidas and Nike have continued to face criticism on labor issues ranging from lack of access to filtered drinking water to allegedly failing to pay wages. In a recent report, Amnesty International USA accused suppliers of major firms including Adidas of suppressing labor rights and aggressively discouraging workers from joining trade unions (2025). Puma has also come under fire for similar problems relating to its own suppliers (Brook et al., 2023).

What sportswear firms are doing to boost sustainability efforts

Amidst rising awareness of sustainability and the role firms can play, and facing pressure from the likes of Greenpeace and politicians, major sportswear firms have been making an effort to address sustainability issues.

In its most recent assessment of major firms' performance on sustainability matters around the world, S&P – a financial and analytics company – named Asics, Puma, and Anta Sports (a major Chinese sportswear producer) as standout players in the sportswear sector. The S&P Sustainability Yearbook names companies S&P consider to be strong performers on sustainability issues relative to their peers (S&P Global, 2026).

In 2018, major brands including Nike, Adidas, Puma, Decathlon and Lululemon signed up to the United Nations' Fashion Industry Charter for Climate Action, alongside other major clothing and footwear brands ranging from H&M to LVMH. Signatories commit to reducing their emissions by 30% between 2015 and 2030, and to achieving net zero emissions by the year 2050.

However, in a recent progress report, the UN stated that although climate action is progressing amongst the signatories, it is not at the required pace to hit 2030 targets. The UN notes progress does vary but different levels of disclosure make it challenging to fully assess each firm's progress (UNFCCC Authors, 2025).

Consumers may well perceive such differences. In its latest annual rankings of the world's top brands by reputation, RepTrak placed Adidas in 2nd place, while Nike has fallen to number 50. Only 2 years ago both were similarly placed (2026 *Global RepTrak*, 2026). Adidas' rise in the standings is a result of improved perceptions over sustainability issues including employee well-being.

Firms across the sector have launched various initiatives to try and improve their environmental impact. For example, Puma announced it is working with RE&UP Recycling Technologies to improve its use of polyester recycled from apparel. By 2030 the company is targeting a rate of 100% for recycled fibers used in its polyester fabric (*PUMA and RE&UP Announce a Multi-Year Collaboration to Scale Circular Textile Solution*, 2025).

More important than perceptions are actions and firms are starting to build up a track record of delivering change. Puma announced it reduced its greenhouse gas (GHG) emissions by 24% between 2022 and 2023 and it achieved its goal of producing 90% of its products from recycled or certified materials in 2024 (*PUMA Reaches Goal of Making 9 out of 10 Products with Recycled or Certified Materials*, 2025). Adidas announced a reduction of 22% in Scope 1 & 2 GHG emissions (these are emissions the company has direct control over) between 2022 and 2025 and says 99% of polyester used comes from recycling (Adidas, n.d.). Meanwhile Nike announced an even more impressive 69% of GHG emissions between 2020 and 2024, and a 40% reduction in freshwater consumption by material suppliers over the last decade (Nike, n.d.).



While firms work on reducing their carbon footprints, efforts to promote more circular use of materials and products have increased. Some firms have launched their own programs to recycle old goods. Such programs include New Balance' Reconsidered and Nike Refurbished amongst others. Firms are also partnering with companies that can help improve material recycling rates. One example of this is Lululemon's partnership with the Australian company Samsara Eco, which is helping the firm improve its use of textile-to-textile recycling (lululemon, 2024).

As regards labor issues, firms like Nike and Adidas publicly disclose the companies to which they outsource production. This allows human rights and labor organizations to better monitor and assess compliance with ethical standards and local laws.

Sportswear firms now publish codes of conduct and policies relating to working conditions and human rights on their website. Many also state they conduct internal audits. Firms who are members of the Fair Labor Association are required to allow independent and unannounced audits from external examiners. Both Adidas and Puma signed up to the Pakistan Accord, which commits them to certain standards on safety at suppliers in the country (International Accord for Health and Safety in the Textile and Garment Industry, n.d.).

Despite their intentions, firms still face criticism over working conditions. This is similarly true for their environmental efforts. The industry has been accused of 'greenwashing', which refers to the practice of making something appear clean and environmentally friendly when it is not. These accusations have cast doubt over the credibility of firms' sustainability goals and even over achievements firms have reportedly made. One recent example of this is Nike, which got in to trouble in the United Kingdom when it was ruled to have made misleading sustainability claims in advertising its tennis shirts (Mitchell, 2025).

Meanwhile, Adidas was taken to court in Germany by an environmental and consumer protection agency after being accused of deception over failing to disclose how it would meet its sustainability goals (Wenzel, 2025). This court case highlights one risk firms may face in overpromising and underdelivering on sustainability issues. As Greenpeace alleged of Adidas, it did not take enough action to effect change despite being one of the first global companies to commit to ending the use of hazardous chemicals in its goods production back in 2011. Greenpeace says the company failed to set clear targets for this goal and consequently made little progress (Brodde, 2014).

The economics of sustainability in the sportswear market

As the previous section suggests, firms are being held accountable on sustainability issues. However, not all sportswear consumers equally prioritize sustainability issues when they make spending decisions.

According to consultancy Bain & Company's analysis of its own global consumer survey, the most important factors when purchasing clothes and accessories are quality, price, fit, durability, and style. Environmental considerations and social impact ranked 6th and 10th respectively (D'Arpizio et al., 2022). Clearly, price and value for money continue to be the dominant factors in determining sportswear spending decisions.

Furthermore, Bain & Company identifies five groups of consumers within its sample which broadly give similar responses to questions relating to sustainability issues. Looking at this breakdown suggests a positive relationship between consumers' willingness to take sustainable action and consumer incomes. In other words, those who place more emphasis on these issues are those who can most afford to purchase sustainably sourced products at higher prices.

Relatedly, a recent survey conducted for a study in India – a country where the typical consumer income, as measured by GDP per person, is lower than major sportswear consuming countries like North America, Europe and China (International Monetary Fund, 2026) – also found price, design and fit to be the most important considerations when shopping for Nike and Adidas products (Bhatnagar, 2026).

Even in larger, high income consumer markets, at times of economic uncertainty and relatively high price inflation consumers may be more sensitive to prices and reduce their spending plans for sportswear (Becker et al., 2022). When consumers are more constrained by finances, they may be less likely to buy sporting goods made with (for example) organic materials sourced from producers with safe working practices if the price is above alternatives available to them. As suggested by the Indian



study, this may be especially true in lower income countries where consumers may be most sensitive to price.

While it may not be the number one factor determining sportswear spending decisions, issues relating to sustainability are clearly a consideration. Bain & Company report that around 15% of global fashion consumers are 'already highly concerned about sustainability' and these shoppers make spending decisions which try to reduce harm. A problem for not just these consumers but also the remaining 85% is the lack of transparency – and in some cases credibility – around firms' sustainability practices.

Bain & Company's research notes there is a gap between consumers' attitudes (what they say in surveys) and their behavior (what they actually do). For example, consumers report buying secondhand clothes and responsibly disposing of unwanted clothing more than they actually do. Of all the factors considered in the report, the largest discrepancies between consumers' reported behavior and actions occur when people must do their own homework before shopping. These are actions like buying from brands 'with ethical labor policies' and with 'sustainability certification', the information for which does not appear on packaging. Without it, consumers need to do their own research to know whether they are buying sportswear which can accurately be described in these ways.

More positively, Rausch et al. (2021) conducted experiments with online shoppers to better understand consumers' attitudes and behavior towards sustainability. Their work suggests consumers actually prefer to purchase products from firms paying their workers fair wages, offering good working conditions, and with environmentally friendly production practices, compared to a 20% price discount.

However, even for consumers who are willing and able to investigate the sustainability practices of sportswear firms, finding the information and forming a confident view can be challenging. Sustainability certifications available to sportswear producers can be difficult to understand. The OECD notes that many certificates are 'black boxes' awarded on a pass/fail basis (OECD, 2025). While some certificates offer more detail than others, this means trade unions and companies outsourcing their production (as major sportswear companies frequently do) may be unable to assess the extent to which a supplier passes or fails. An outstanding firm and one which just barely passes both receive the same passing score, but the pass/fail criteria treat them equally.

Sustainability standards can also vary from one country to another. For sportswear producers where materials may be sourced in one country, dyed in a second, and woven in a third country, differing standards in each country can make it hard to assess sustainability practices across the global supply chain. Australia, for example, runs a voluntary scheme for the waste management practices of clothing producers, though few companies were quick to sign up to it (Woods, 2024). This contrasts with the European Union (EU), where mandatory measures are more strictly enforced. The EU introduced a law in 2024 which bans sportswear firms from making generic claims about the environmental effects of their production and practices without proof to support the claims. This represents part of a wider push in the EU to increase the life cycle of sportswear and textiles more broadly as part of its plans to realize a circular economy by 2050 (European Parliament, 2020).

For consumers, although sustainability certifications are intended to provide them with transparency and give confidence that firms and products comply with certain standards, the numerous and diverse range of certificates may in fact complicate things. In trying to reduce the information asymmetry faced by consumers, the various and voluntary nature of standards may simply confuse consumers.

Producers themselves face costs in complying with sustainability practices. Clearly, it is more costly to provide workers with good working conditions and higher wages. If environmentally friendly practices were the cheapest available to firms which are motivated to maximize profits, they would surely produce more cleanly. However, in many regions where sportswear production occurs like China and South East Asia, coal and other hydrocarbons continue to be burned to make electricity that powers factories because it is relatively cheap (*Record Coal Generation Share in Indonesia and the Philippines Surpasses Poland and China*, 2024). Sportswear firms purposefully outsource manufacturing of their goods to countries where labor costs are cheaper. While Nike's biggest consumer market is in North America and it would save money on transportation of its goods if it produced there, it does not make commercial sense for them to do this. Nike's cost savings on transportation would likely be much smaller than the higher labor costs it would pay if production moved to (e.g.) Michigan.



Results and Discussion

What can be done to materially improve sustainability?

Producers

As the previous section suggests, consumers are sensitive to price and firms' production decisions are clearly motivated to a large extent by costs. While consumers are sensitive to sustainability and social responsibility issues, the reality for the sportswear industry is that it will have to find ways of improving sustainability whilst managing costs. Faced with financial constraints, firms may have to find innovative ways of improving sustainability if they are to meet their goals, whether set by a UN Charter or simply in catching up to competitors who are ahead of the game.

In dealing with their carbon footprints, firms must identify methods of addressing emissions across their supply chains. Signatories to the UN's Fashion Industry Charter for Climate Action commit to phasing out coal by 2030 (United Nations, 2023). However, their major production sites are still in regions where coal is a major source of electricity.

Moving away from coal can be challenging given its low cost and prevalence in certain regions. The likes of Puma and Nike do not control energy policies in China for instance but they can choose to locate production in regions where cleaner energy forms are more prevalent. Increasingly, renewable forms of energy are cheaper than the likes of coal and gas (Gulledge, 2025). While the infrastructure in many regions is yet to scale up to the size needed to support industry, cost-effective renewable energy is increasingly attainable for sportswear firms.

Increasing transparency over manufacturing processes and allowing stakeholders like the UN to better understand and assess progress on climate initiatives could help improve trust in firms' production practices. Of course, disclosing a lot of detail may be costly to a firm both in terms of process and if it shows the firm has done little to reduce its carbon footprint.

However, firms being more transparent and opening themselves up to scrutiny allow for honest assessments, which can bode well in the longer term. Such transparency can ultimately start to foster more trust and allow consumers to make more informed consumption decisions over sportswear. If firms are unwilling or unable to provide transparency, regulators and governments may even consider mandating disclosures. If reducing information asymmetry ultimately benefits wider society, albeit at a possible cost to individual firms, then there is a case to be made for more oversight.

Reducing waste from the sector is complicated by the limits of industry's recycling ability. Industry may benefit in the long term from investing in research to improve our ability to recycle textiles. While it is a cost to the firms who may contribute to it, it should be considered investment. More efficient recycling could actually help reduce the need to source materials from around the world and reduce emissions associated with new production.

More circular usage of old sportswear may threaten firms' ability to make new sales. However, the growing secondhand market could present firms with a chance to earn new sources of revenue. Nike, Adidas and others already run programs of taking in unwanted products and renewing them for sale in the secondhand market. These firms could consider letting their design teams make changes to the goods they take in. That way, secondhand products could be reworked into something new which firms could sell.

As for water consumption issues, using organic materials can help reduce the water usage for fiber production. For example, organic cotton is estimated to require over 90% less water than non-organic cotton (*Is Organic Cotton Sustainable? Here's What You Need to Know*, 2020). This is because organic cotton relies on rainwater rather than irrigation.

However, this is not straightforward. Organic crop yields are typically low relative to non-organic alternatives. Furthermore, there may be a more limited choice of materials available to firms relying on organic crops (Safaya et al., 2016). This means organic materials may be more scarce and therefore more costly to source than non-organic alternatives. Costs will ultimately then be passed on to end consumers of sportswear goods produced with organic materials. Consequently, at least in the short term, consumers wanting to support the role of organic materials in their sportswear goods will likely pay a higher price for their goods. Not all consumers will be willing and able to make this choice.



Adherence to international, commonly understood sustainability standards can help firms and consumers' perceptions of them. Such standards and certifications can be a sign of good governance and adhere to good practices when it comes to conditions for workers and the environment. Having a smaller number of certificates which can be easily scrutinized and internationally accepted would reduce information asymmetry, allowing consumers to make more informed decisions about their sportswear spending.

Consumers

While more could be done to help consumers better understand and more easily verify just how sustainable sportswear products are at the point of purchase, consumers still need to consider what more they can do after purchase. The burden of change does not fall solely on sportswear producers.

One such change could be a reduction in consumption of apparel and footwear. McKinsey, a consultancy, notes that the number of clothes purchased per person grew by 60% from 2000 to 2014 and consumers keep clothing items for roughly half as long as they used to (Remy et al., 2016). The rise of fast fashion and entry in to the sportswear market of lower priced firms like Uniqlo have coincided with rising consumer incomes. This has led to a rise in consumers viewing particularly cheaper sportswear as increasingly disposable.

By extending the life of the sporting garments consumers buy in their own wardrobes, consumers can help to reduce the carbon footprint of production and shipping. Re-selling clothes is another way in which consumers can extend the life of garments. Indeed, the rise of second-hand marketplaces like Poshmark and eBay has elevated these resale platforms into mainstream consciousness. According to Thredup, another resale marketplace for clothing, the global used apparel market is expected to double in size between 2021 and 2026. The company projects the secondhand resale market to grow more than twice as much as the wider market for apparel by 2030 (ThredUp, 2026).

This suggests consumers are willing to change their consumption habits and 49% of younger generations surveyed by Thredup say they have reduced their consumption of low-quality clothing due to the fact that it cannot be resold. This trend is arguably driven more by economic factors than sustainability issues. Thredup's survey suggests two-thirds of buyers now consider the resale value of garments before purchasing them, and the share of sellers who do so to generate income more than doubled to 57% in the last year. Nevertheless, the ultimate effect can be to reduce environmental problems.

For sportswear, there may be less appetite amongst thrift store shoppers for well used sporting apparel. The thought of wearing running shoes, gym shirts or leggings that have been well worn by someone else may be too much of a deterrent for lower prices to overcome. However, Thredup reports that Athleta and Lululemon are amongst the top 10 brands by total orders on its website. A look at similar websites suggests retro Adidas and Nike clothing and shoes do quite well, as do more recent unwanted purchases sold as 'new' or 'like new'.

This trend has not gone unnoticed by sportswear manufacturers. It is typically younger shoppers (Gen Z and Millennials) who are more likely to re-sell clothing and much of the projected growth in the resale market is expected to come from new shoppers who look to resale sites. Recent trends have already contributed to programs such as Nike Refurbished and Adidas' take back and resale scheme.

With regards to washing synthetic fibers and limiting the spread of microplastics in the water, we could all try to be more economical and wash clothes less. This is difficult when many items sold by sportswear manufacturers are used for exercising but washing in cold water. Of course, choosing products with more sustainable materials and natural fabrics which are biodegradable would help reduce problems with microplastics in waste. There are also special filters that can be used in washing machines which capture microfibers.

In the absence of clearly understood certifications for good working practices making it easier for consumers to know whether firms are adhering to certain labor standards, we could all be more vigilant online. An online search can tell you much about a brand and can allow us to make more informed decisions about whether we want to wear that company's branding on our sports clothing and footwear.



Conclusion

When it comes to sustainability issues, the sportswear industry stands out from the wider fashion and apparel sector due to its significant use of synthetic fibers and chemical treatments, which can be significantly harmful to the environment. It has also faced severe scrutiny over labor conditions at its suppliers.

As these issues have come to light and are better understood, companies have taken action to improve their working practices but much remains to be done if they are to meet public commitments. With many of the biggest sportswear firms headquartered in the biggest consumer markets – like the USA (e.g. Nike), Germany (Adidas), and Japan (Asics) – but production largely occurring in lower income regions far from these places, where labor laws less familiar to the head office, it suggests costs continue to be a bigger concern than sustainability.

While that is understandable in a competitive worldwide market where consumers report price and quality as the biggest considerations when purchasing new sportswear, there is long term incentive for firms to improve their sustainability practices. Even for firms constrained by finances, there are commercial reasons to improve working and environmental practices. Crucially, it is the younger generations that factor sustainability issues into their spending decisions most and they are the consumers to whom Nike and others must appeal to in the years to come. Firms would do well to play by their rules.

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