

# Global Market Report: Cotton

Vivek Voora, Cristina Larrea, and Steffany Bermudez  
Series Editor: Sofia Baliño

June 2020

**Demand for cotton is expected to remain steady, despite stiff competition from synthetic fibres, though the effects of the current crisis due to COVID-19 might affect demand in the short to medium term.**

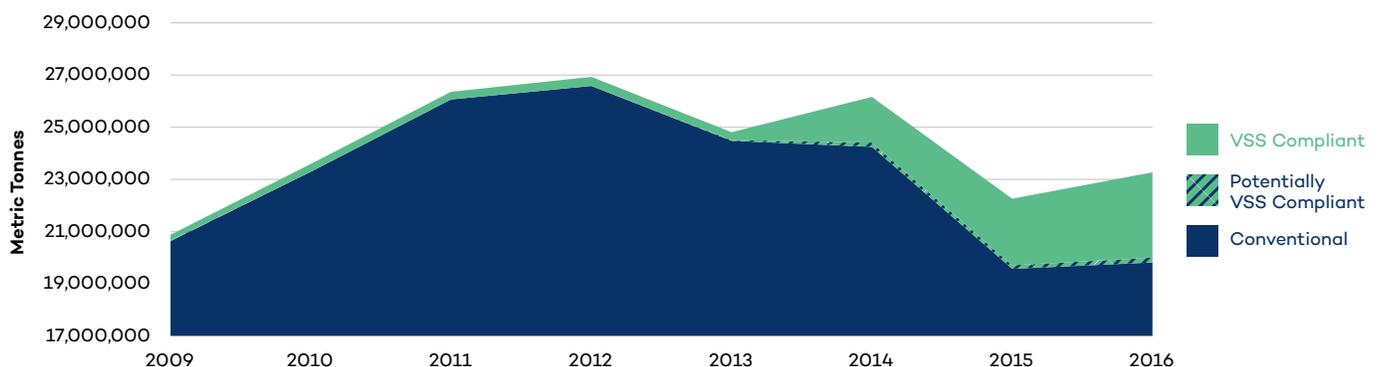
Cotton is the most widely used natural fibre in textiles, accounting for one third of total fibres manufactured worldwide.<sup>1</sup> Well known for its versatility, performance, and comfort, it can be used to create different types of fabrics that are strong, water absorbent, and comfortable.<sup>47</sup> Its uses go beyond textiles, however. The cotton plant yields lint and seeds that are turned into fibre, edible oil, and animal feed.<sup>2</sup> More specifically, fibre is derived from cotton lint, with 64% of fibre produced used in apparel, 28% used for home furnishings, and 8% for industrial applications.<sup>2</sup> Cotton

seeds are crushed to obtain cholesterol-free oil, which is mainly used in cooking and as an ingredient in cosmetics, pharmaceuticals, and personal care products, along with other industrial applications, such as plastics and rubber. Cotton seeds also produce a high-protein meal used to feed livestock and poultry.<sup>47</sup> According to the World Wildlife Fund, “cotton is the most widespread profitable non-food crop in the world.”<sup>4</sup>

Cotton supports the global textile mills market and the global apparel manufacturing market that produces garments for wide use, which were valued at USD 748 billion and 786 billion, respectively, in 2016.<sup>3</sup> Furthermore, cotton supports a USD 3 trillion global fashion industry, which includes clothes with unique designs from reputed brands, with global clothing exports valued at USD 1.3 trillion in 2016.<sup>4,5</sup>

**Cotton compliant with voluntary sustainability standards (VSSs) accounted for at least 14.1% of total cotton production in 2016.**

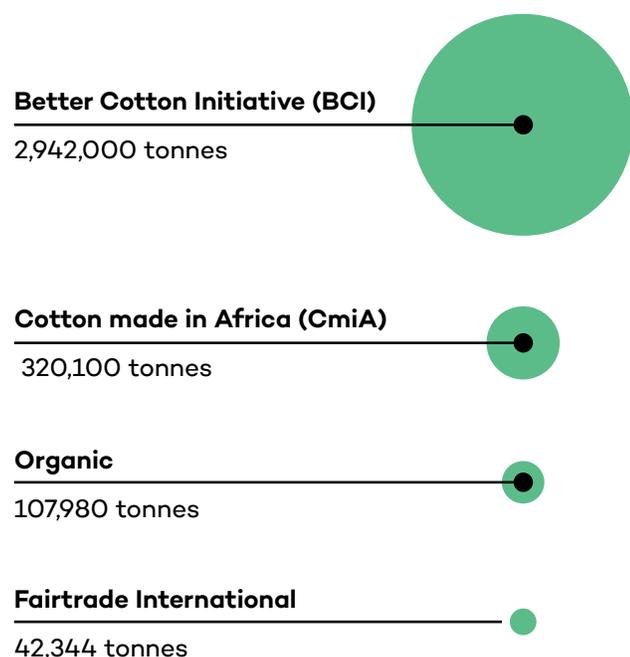
**Figure 1. Global cotton production trend 2009–2016<sup>14</sup>**



*Note: VSS-compliant production volumes refer to cotton produced in compliance with one or more VSSs. Conventional production volumes do not comply with any existing VSSs. Production volumes that are defined as potentially VSS-compliant cannot be definitively listed in either category with the data currently available.*

## How many tonnes of cotton are certified by each standard?

**Figure 2. VSS-compliant cotton production volumes in 2016<sup>22</sup>**



Cotton represents the main source of livelihoods and revenue for up to 1 billion people, out of which 250 million work in cotton processing and 100 million are farmers who cultivate cotton. Approximately 90% of these farmers grow cotton in less than 2 hectares (ha) of land and are located in developing countries, mainly in Central and West Asia, Southeast Asia, and Africa, including in 30 countries that are considered Low Human Development Countries (LHDCs) under the Human Development Index (HDI).<sup>6</sup> Cotton employs close to 7% of the entire labour force in developing countries.<sup>48</sup>

Cotton is an export crop, but its processing takes place largely in the main producing countries, such as China and India, to obtain textiles and clothes. Over the past several years, there has been a global shift in trading cotton yarn and human-made fibres, rather than raw cotton, to increase the value addition of domestic textile industries.<sup>12,49</sup> In 2017, over 30% of raw cotton produced globally—the equivalent of 8.8 million tonnes—was exported and was worth USD 13.5 billion.<sup>9,50</sup> The largest exporting countries in 2017 for cotton (raw cotton, cotton yarn, thread and woven fabrics: HS code 52) were China (USD 15.1 billion), the

United States (USD 7.6 billion), and India (USD 4.7 billion), while the largest importing countries in 2017 were China (USD 8.6 billion), Bangladesh (USD 5.3 billion), and Vietnam (USD 4.2 billion).<sup>7,8</sup>

Looking at demand and supply dynamics for the commodity, cotton demand at the spinning mill, where raw cotton is transformed into yarn, outpaced supply from 2016 to 2018, resulting in a global shortage during this period. There was a global cotton deficit of approximately 1.5 million tonnes in 2018, which led to a release of cotton stocks that had accumulated in previous years, mainly by China, due to its policy to stockpile in order to influence cotton prices.<sup>9</sup> A drop in cotton supply in China, India, and the United States was due to adverse weather conditions, limited water availability, and pest issues.<sup>9</sup> This deficit is expected to continue until at least 2025, though it might be balanced slightly in the short term, depending on the extent of the impact of the COVID-19 crisis on cotton demand.<sup>82</sup> Going forward, the potential continuation of U.S.–China trade tensions and the global economic downturn caused by the lockdowns to contain the spread of the novel coronavirus are two factors influencing the projected deficits in cotton supply at the spinning mill.<sup>10,11,52</sup> The massive lockdowns during spring 2020 have impeded farm activity in India, one of the major cotton producers, causing disruptions in the cotton supply chain. There is also a shortage of labour in cotton plantations since millions of migrant workers had to flee to their villages. Cotton production in the country will be seriously affected since April and June are crucial months to begin sowing the summer rain-fed crops for the next season.<sup>53</sup> These disruptions might influence projected deficits in the cotton supply.

Before the COVID-19 crisis, the cotton sector was expected to grow steadily, driven primarily by the demands of the textiles and apparel sector,<sup>2</sup> with this demand highly concentrated in the Asia–Pacific region.<sup>55</sup> In 2017, this region accounted for 61% and 37.1% of the global apparel manufacturing and retail market value, respectively, followed by Europe. However, these industries are very sensitive to population and economic growth, which affects the ultimate demand for cotton.<sup>13</sup> Prior to the COVID-19 crisis, economists projected the moderate growth of the cotton sector, due to several supply-and-demand-related factors.<sup>12</sup> On the demand side, the fierce retail competition from more affordable synthetic fibres was a factor, especially in developing countries that drive the per capita

consumption of textile fibres and where main population growth is expected. Another factor is the potential impacts of stock reductions on raising cotton prices.<sup>12,56</sup> However, the current United States–China trade war has fuelled uncertainty over the level and stability of global cotton demand, since the United States is a major importing country of textiles and apparel products coming from China. Moreover, recent estimates of global cotton demand have been revised downward as a result of measures implemented to mitigate the health effects of COVID-19.<sup>54</sup>

On the supply side, there are several factors that might reduce cotton production levels, in turn influencing the growth of the overall sector. As China and the United States have experienced in the last decade, the competition for growing more lucrative crops in producing countries reduces the land area for cultivating cotton and leads to recurrent stagnant yields.<sup>12</sup> Despite potential agricultural land constraints on the sector that might affect supply levels, there are significant opportunities to improve yields via better agricultural practices and technological advances.<sup>13</sup> For instance, research shows that average global yields have increased by almost 100% in the last 30 years due to these two factors, going from 411 kg/ha in 1980/81 to 790 kg/ha of cotton lint in 2013/14.<sup>57</sup>

The ultimate impacts of the COVID-19 outbreak on the cotton and textiles industry are still uncertain. However, the pandemic has already affected every link in the cotton–textile global supply chain. Many factories and businesses have closed due to public health directives, which has led to cancellations and the suspension of existing orders by many Western clothing brands. This, in turn, is expected to damage cotton plantations and textile factories from countries such as Bangladesh and India.<sup>58,59,60</sup> The research in this report was largely conducted in a pre-COVID context, though its insights into the cotton sector and its prospects can contribute to planning in the post-COVID landscape.

If the situation stabilizes after the current lockdowns, demand for cotton lint will be driven primarily by Chinese spinning mills, as China “remains the largest producer, consumer, and trader of textiles and clothing in the world.”<sup>51</sup> Indian mills are the second-largest source of demand, though there are signs of rapidly growing demand from spinning operations in Bangladesh, Indonesia, and Vietnam.<sup>61</sup> The demand growth in those latter three countries is likely to be

## LIVELIHOODS

100 million farmers cultivate cotton

250 million people work in cotton processing

90% of farmers cultivate cotton on less than 2 ha

fuelled by their lower labour costs and import tariffs, as well as less demanding environmental regulations than China.<sup>12,13,51</sup> For similar reasons, Chinese and Indian textile factories have also started to move their operations to African countries, a trend that might increase in the near future.<sup>51</sup> Pre-COVID estimates suggested that cotton prices were expected to be lower relative to 2015 and fairly stable until 2027, due to government interventions in cotton-producing countries to ensure the crop’s competitiveness versus synthetic fibres.<sup>12</sup> The continuation of United States–China trade tensions might keep the pressure on prices in the medium term, especially given concerns over the long-term viability of the “phase one” trade agreement signed between Beijing and Washington in early 2020.<sup>62,83</sup> In March 2020, cotton futures prices hit a 10-year low, as preventive measures to contain the spread of COVID-19 forced textile manufacturing companies to close and clothing retailers to shutter their stores.<sup>63</sup>

The increased adoption of VSSs by cotton producers is another notable development in the cotton market over the past decade. In 2016, 14.1% of the market was made up of VSS-compliant cotton, while accounting for only 1% in 2009. Meanwhile, cotton that was potentially VSS-compliant represented 0.8% of the market. By comparison, conventional cotton production accounted for 85.2% of the market, showing that there may still be significant room for growth in VSS uptake.<sup>14</sup>

### Major social and environmental issues affect the sustainability of the cotton sector.

The market advisory firm Mordor Intelligence predicts that global cotton consumption will experience a 3.1% compound annual growth rate (CAGR) from 2019 to 2024, indicating moderate growth of the sector as mentioned above, though again not accounting for the COVID-19 impact.<sup>2</sup> This projection takes into consideration cotton pricing estimates, which are influenced by cotton stockpiling, mainly by China,<sup>84</sup> as well as subsidies, trade agreements concerning cotton, and global production forecasts. The medium to long-

## MARKET VALUE

Over USD 7.5 billion in VSS-compliant cotton based on 2016 cotton producer prices

## CAGR 2008–2016

Conventional production is down by 0.58% while VSS production is up by 48.05%

## COTTON PRODUCTION IN LHDCs

6% of total cotton produced

6% of VSS-compliant cotton produced based on 2016 data

term effects of the current economic downturn remain uncertain, but growth projections for 2020 might be adjusted downward.

However, the cotton sector faces important sustainability challenges at the growing stage that cannot be overlooked. On the economic side, the sector already faces significant price volatility due to several factors, including the effects of cotton stockpiling programs and the high vulnerability of cotton production to flooding. Between the 1990s and approximately 2014, China purchased a significant amount of cotton as a price support mechanism to its farmers when prices fell below a set floor, which contributed to an increase in global prices. China releases its stock to keep prices stable and deal with supply shortages, as it has happened since 2015.<sup>9,56</sup> Moreover, farm cotton prices tend to be low, adversely affecting producers' livelihoods. These prices are often the result of unfavourable trade terms and high subsidies provided to cotton producers in some developed countries and emerging economies, notably the United States, China, and Russia.<sup>64,85</sup> As a result, less-developed producing countries cannot offer product-specific support to cotton farmers losing competitiveness in the market, and the farmers end up selling their produce at unfavourable prices. In West Africa, where cotton is an important cash crop, recent research has found a direct correlation between a decrease in cotton prices and an increase in farmer poverty levels.<sup>57</sup> While some of West Africa's cotton-producing countries—including the "Cotton-4," Benin, Burkina Faso, Chad, and Mali—have long sought negotiated reforms to the World Trade Organization's

(WTO) farm subsidy rules in relation to cotton, the WTO's agriculture talks on cotton and other subjects have advanced slowly and intermittently in recent years.<sup>86</sup>

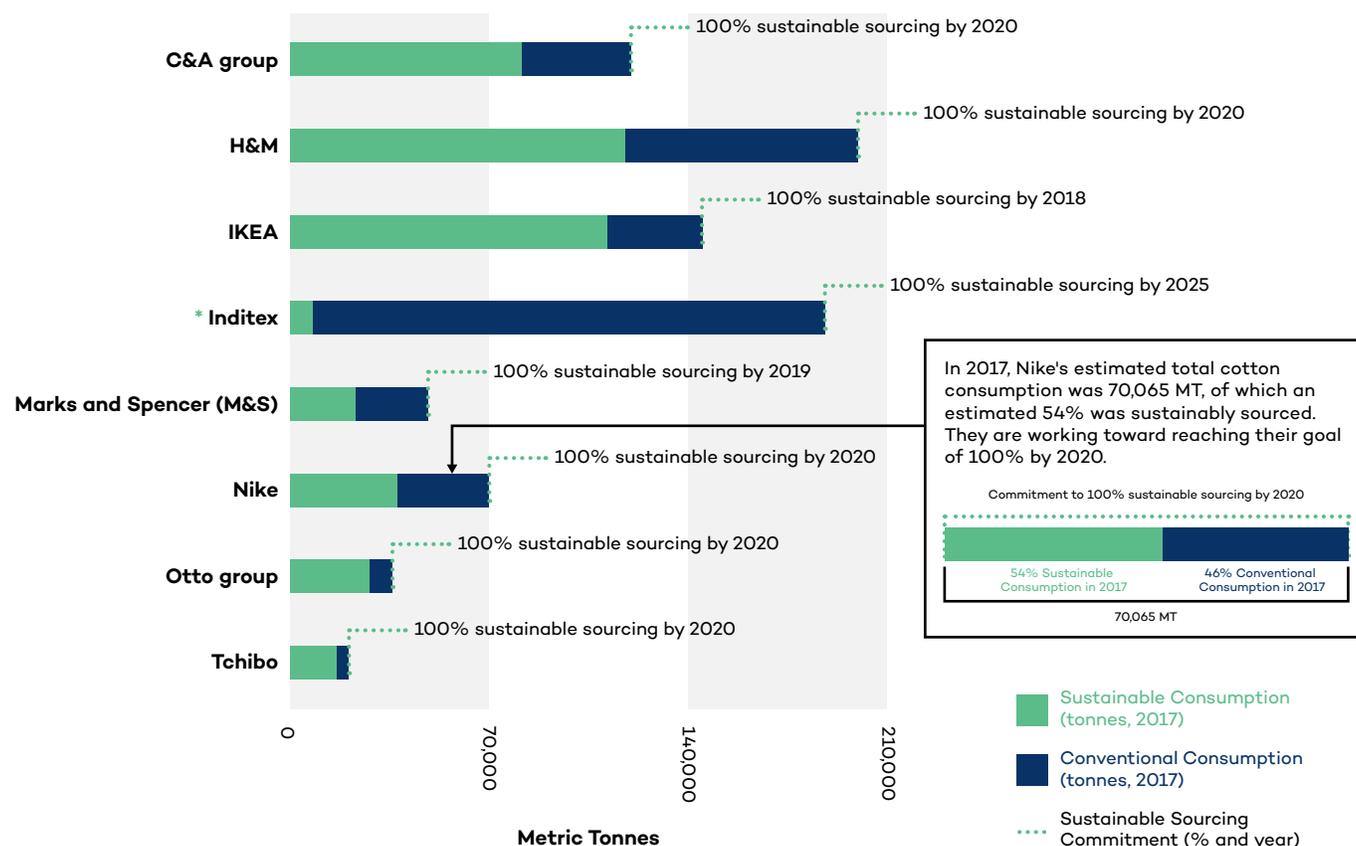
On the environmental side, cotton production has a track record of water-intensive management practices. It is estimated that more than half of cotton land area is irrigated by methods that are often inefficient in their water use. This leads to a considerable reduction in groundwater levels, causing water stress in some regions.<sup>65,66</sup> Cotton production also requires heavy pesticide use: the sector is responsible for the application of 16% of insecticides and 6.8% of herbicides globally.<sup>67</sup> These chemicals wash into water sources, contaminating them. In response to the high use of pesticides, the last couple of decades has seen the cotton sector introduce genetically modified (GM) cotton seeds that tend to be more pest-resistant. Many farmers have become dependent on these seeds, despite their higher input costs and the impacts on farmer debt levels.<sup>68</sup> In some reported cases, the use of GM seeds has also had negative impacts on the quality of the cotton, which has prompted some cotton farmers to move away from them.<sup>87</sup>

In addition, several social issues have been reported concerning cotton plantations, including low wages paid to workers and some documented cases of slave labour.<sup>69,70</sup> Leading cotton-growing countries also report cases of informal cotton workers, no compliance with safety and health standards, and the use of child labour in cotton operations.<sup>71</sup> In light of these concerns, growing cotton in a more sustainable manner becomes imperative for the sector to improve its economic, social, and environmental performance, and its potential to offer a viable livelihood strategy to millions of farmers and workers that are employed in the cotton sector.

Synthetic fibres overtook cotton as the main textile fibre at the turn of the century and remain its main competitor. Cotton fibre has not been able to compete with low synthetic fibre prices. Nevertheless, fossil fuel-derived synthetic fibres such as polyester and nylon involve a high level of greenhouse emissions in the extraction of oil and processing of the fibres. As a result, they currently do not offer the same properties and potential to reduce their environmental footprint as the cotton fibre does when produced sustainably.<sup>72</sup> National climate change policies to reduce emissions, such as Nationally Determined Contributions defined

## Progress toward sourcing more sustainable cotton.

**Figure 3. Major apparel manufacturers and retailers consuming cotton, their sustainable sourcing commitments and progress in 2017<sup>91-101</sup>**



\* Inditex: VSS-compliant volumes refer to organic cotton only. Inditex is known to source from BCI, but sourcing volumes were not found. Inditex sustainable cotton strategy and sustainable sourcing commitment targets sourcing organic, BCI, and recycled cotton.

Note: Adidas shared sourcing information with disclosing restrictions.

Please note that a few apparel and clothing companies listed report in aggregate VSS-compliant cotton volumes and recycled cotton. When companies report disaggregated data distinguishing VSS-compliant volumes from recycled, only the former was considered.

by countries that have ratified the Paris Agreement, may level the playing field between synthetic and natural fibres, providing an opportunity to increase the production of sustainably grown cotton. For this reason, the cotton sector needs to become more sustainable to better compete and ensure its durability.

To improve the sustainability of cotton production, the sector must deal with both price instabilities and market uncertainties concerning supply and demand trends, as well as major issues affecting the sector's social and environmental performance, including its carbon footprint.<sup>16</sup> Cotton can be a significant source of greenhouse gas emissions; this exacerbates climate

change, which in turn has its own detrimental effects on the sector. Cotton is grown in many arid and semi-arid regions, which are projected to experience more erratic weather patterns, affecting cotton production. Among these weather-related shocks are water deficits, flooding, and increased pest outbreaks. For instance, an extended drought in the U.S. State of Texas resulted in USD 2.2 billion in cotton crop losses in 2011.<sup>17</sup> On the other hand, a modelling study conducted to assess the climate change impacts on cotton production in India found that it will have a negligible effect on productivity at the national scale.<sup>18</sup> Different actors and initiatives, including VSSs, are working to address some of these issues concerning cotton to improve its sustainability

performance and its potential to be a decent source of livelihoods for millions of farmers and workers.

### Sustainable cotton could be competitively advantageous but requires mobilizing the textile supply chain.

Although VSSs<sup>A</sup> have been present in the cotton sector since the 1990s, they only started capturing a significant share of cotton production as of 2014.<sup>19,20</sup> The emergence of single-sector VSSs focused on cotton, including Better Cotton Initiative (BCI) and Cotton made in Africa (CmiA), has led to a significant expansion of VSS presence in the cotton sector. VSS-compliant cotton offers consumers more sustainable cotton-based products, enabling them to support more socially conscious and environmentally friendly cotton production practices. Perhaps the most important contribution of VSSs to maintaining the viability of the cotton sector is the mobilization of all parts of the cotton supply chain to address complex sustainability challenges. As mentioned previously, these challenges include increasing prices paid to cotton farmers and wages to workers; reducing price volatility, pesticide use, water consumption, and GM seed dependence; and eliminating forced and child labour.<sup>16,21</sup>

VSSs provide guidance and often resources for cotton farmers to engage in production practices that address these challenges, which can result in more sustainable and profitable outcomes for them. For instance, VSSs operating in the cotton sector use their principles and criteria to require that cotton operations apply water conservation measures, such as the development and implementation of a water management plan or measures to improve the efficiency of water extraction and irrigation methods. They also require that farmers avoid the use of hazardous chemicals while encouraging the incorporation of integrated pest management practices. To comply with a VSS, cotton producers must ensure a minimum and sometimes a living wage for workers and respect basic labour rights, such as free labour.<sup>20,73</sup> Recent evidence of certified BCI cotton farms in India showed that these use 19% less pesticides than control groups while obtaining higher yields by 9%.<sup>74</sup> According to Textile Exchange, a non-profit association of textile companies and retailers,

a pair of jeans manufactured with organic cotton uses 1,982 gallons less water, compared to jeans made with conventional cotton.<sup>103</sup> This has a positive impact on water conservation at cotton plantations. Despite the positive results obtained by plantations growing VSS-compliant cotton, challenges persist. For example, there have been cases reported in India where organic cotton has been contaminated with GM cotton, due to cross-pollination and the distribution of contaminated seeds.<sup>75,76</sup> This has prompted several actors, including the Research Institute of Organic Agriculture (FiBL), the Organic Cotton Accelerator, and IFOAM Organics International, to define strategies to mitigate cotton contamination. They are also working to provide organic farmers with guidelines and tools that encourage continuous improvement in maintaining the integrity of organic cotton.

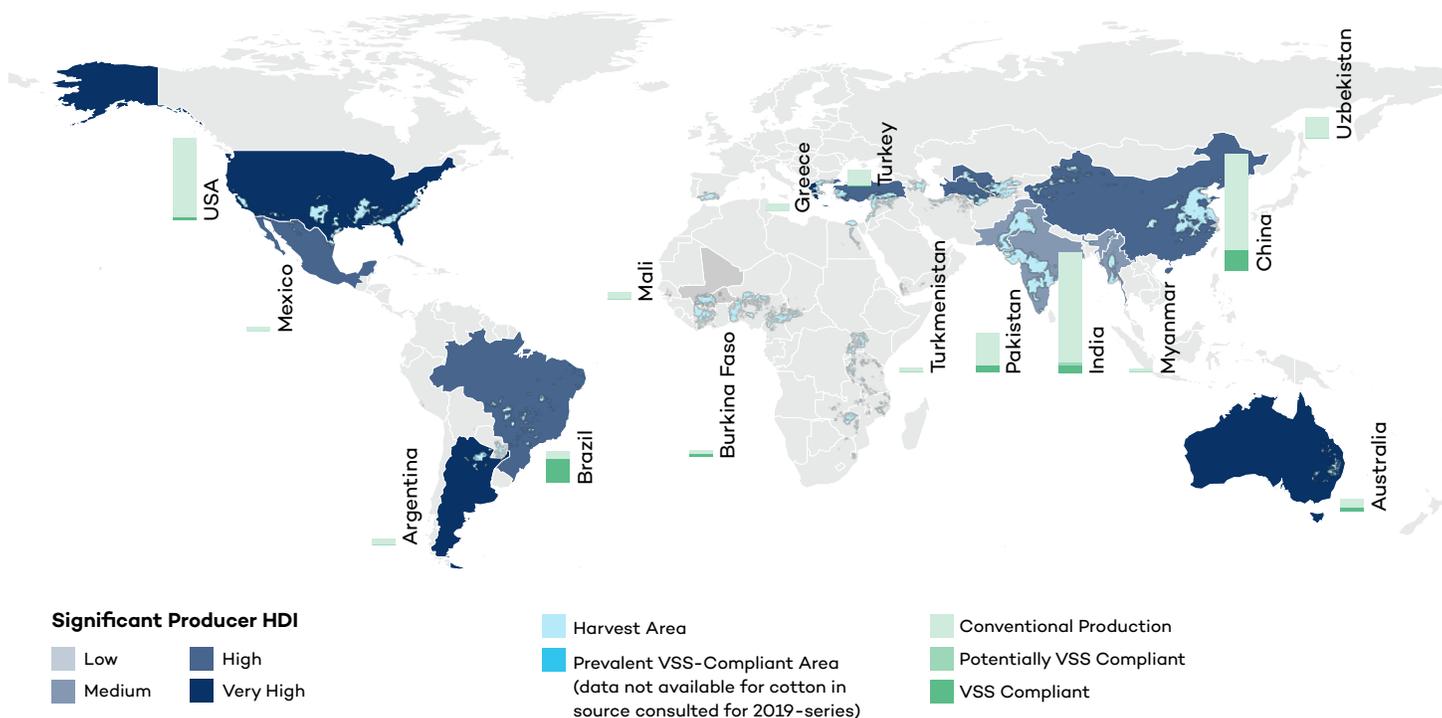
On the supply side, VSS-compliant cotton has grown significantly in recent years, experiencing a CAGR of approximately 48% from 2009 to 2016 and accounting for at least 14% of cotton production overall. Organic, BCI, CmiA, and Fairtrade are the main VSSs in the cotton sector by production size. In 2016, at least 3.2 million tonnes of cotton was VSS-compliant, valued at USD 7.5 billion.<sup>14,22</sup> This value is derived from the average producer prices per country, as reported by the Food and Agriculture Organization of the United Nations (FAO), which is then applied to the volume of VSS-compliant cotton produced per country.<sup>14,22</sup>

Most of the VSS-compliant production, at approximately 48%, comes from Asia (China, India, and Pakistan) and Brazil (32%), with some important volumes coming from Africa (Cameroon, Ivory Coast, and Zambia) and the United States. The proliferation of GM cotton has limited the expansion of some VSSs in the sector. Organic, Fairtrade, and CmiA all prohibit the use of GM cotton as part of their production standard. BCI is currently the only VSSs of note in the sector that allows its farmers to grow GM cotton. Despite the potential benefit that GM cotton offers farmers, such as pest resistance, the seed dependence mentioned above has led many organizations to be wary of its use. Some organizations, like the Organic Cotton Accelerator, are working diligently with cotton supply chain stakeholders to enable organic cotton to be more competitive with GM cotton.

<sup>A</sup> The United Nations Forum on Sustainability Standards defines VSSs as “standards specifying requirements that producers, traders, manufacturers, retailers or service providers may be asked to meet, relating to a wide range of sustainability metrics, including respect for basic human rights, worker health and safety, the environmental impacts of production, community relations, land use planning and others.”<sup>102</sup> To review the purpose of various VSSs and the set of requirements producers need to comply with under each scheme, please access SSI reviews at [www.iisd.org/ssi](http://www.iisd.org/ssi)

## Cotton-growing regions of the world

Figure 4. Distribution of cotton production in the top 15 producing countries in 2016 14,78,79,80



Download high resolution version of the map at <https://www.iisd.org/sites/default/files/publications/ssi-global-market-map-cotton.pdf>

On the demand side, VSS-compliant cotton is starting to capture more market share. The eight largest brands selling cotton-based textiles purchased at least 0.8 million tonnes of cotton in 2017, accounting for an estimated 3% of total global cotton consumption (at the mill). From this total, over 0.4 million tonnes was VSS-compliant cotton. Based on the sourcing commitments of these eight leading brands selling cotton-based textiles, and assessing these against current cotton sourcing information, an additional 0.4 million tonnes of sustainable cotton could be consumed by 2025.<sup>23</sup> These sourcing commitments aim to meet growing consumer preferences for more sustainable products, as well as lower supply and potential reputational risks concerning the cotton sector, given its environmental and social footprint.<sup>15,24,25</sup>

From a supply chain management perspective, companies in the textile and apparel sector are aiming to improve the identification of raw materials and inputs used when growing and processing cotton and to make this information visible through the multi-tier supply chain with the use of technology. Issues of special interest

include confirming preferred materials, such as organic cotton, non-GM cotton, or recycled cotton; measuring carbon emissions and water consumption levels; and identifying suppliers and links across the supply chain. By sourcing VSS-compliant cotton, brands aim to mitigate different supply risks by leveraging cotton-growing requirements, data collection efforts, traceability, and labelling systems that VSSs have established through the cotton supply chain. From a market development perspective, sustainable sourcing commitments from cotton-based textile companies are also driven by consumer preferences for purchasing eco-friendly clothes and homeware, mainly in Europe and the United States.<sup>15</sup> For instance, estimates by Textile Exchange suggest that the consumption of products made with organic cotton increased globally by almost 70%—reaching a retail value of USD 1.6 billion in 2015—and demand for organic cotton apparel is expected to outpace supply in the coming years.<sup>15,77</sup> CmiA and BCI also reported sales growth in their respective standard-compliant cotton in 2018, driven by increased demand from retailers and brand members. For BCI, this increase was 45% over the prior year.<sup>88,89,90</sup>

In addition to leveraging traditional markets in Europe and North America, the best opportunities for expanding sustainable cotton consumption could lie in emerging economies, where demand for more sustainable products is expected to rise among end consumers.<sup>15,26</sup> The textile and apparel sectors are positioning themselves to capitalize on growing consumer sustainability demands by developing and offering more sustainable products and better communicating their sustainability goals.<sup>27</sup> Nevertheless, consumers often consider conventional cotton-based products as sustainable, in comparison with other natural fibres such as wool, silk, and human-made fibres, which could limit the uptake of VSS-compliant cotton products.<sup>28</sup> This pervasive lack of information among consumers regarding the environmental and social issues concerning cotton could be addressed through awareness-raising efforts, including education and communication campaigns.<sup>28</sup>

### Expanding sustainable cotton needs to focus on large cotton-producing countries as well as LHDCs, but China remains key.

Expanding sustainable cotton production will require a continuing focus on large cotton-producing countries, as well as cotton-producing LHDCs. To effectively grow VSS-compliant cotton, the considerations listed above—such as market dynamics influenced by synthetic fibres, poor farm prices, the proliferation of GM versus non-GM cotton, water stress and contamination, and potential climate change impacts—need to be carefully considered. Nevertheless, as one of the largest producers, exporters, and importers of cotton, China remains the key player to significantly expand global sustainable cotton supply and demand.<sup>29</sup>

Although VSS-compliant cotton production is currently experiencing a greater growth trend than the overall sector, its continued expansion may require moving into countries that currently do not have VSS-compliant cotton production, such as Uzbekistan, Argentina, and Greece.<sup>14</sup> Uzbekistan could be especially challenging, as labour rights abuses have continued in the cotton sector despite efforts by their central government to improve the situation.<sup>30,31</sup> Addressing this challenge will require VSSs to work closely with Uzbekistan's government to find acceptable solutions.

Another core consideration in assessing opportunities for expanding VSS compliance in the sector is the

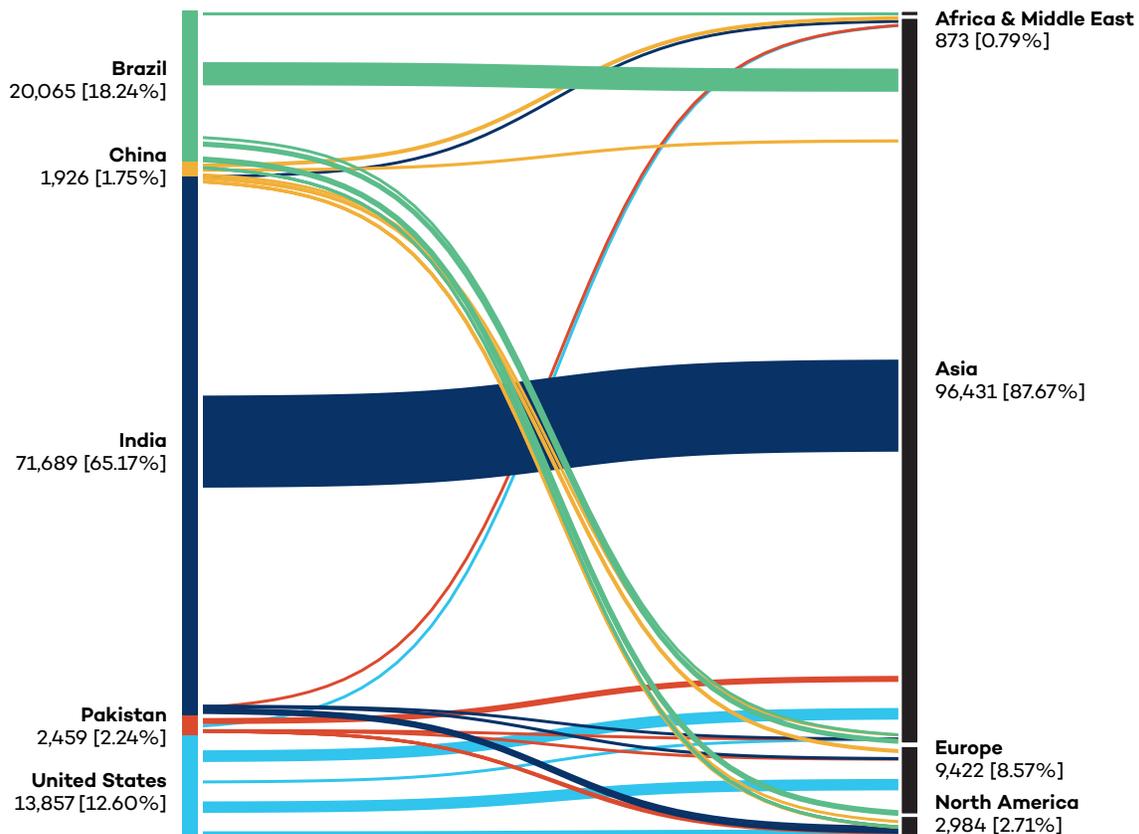
human development level of cotton-producing countries, as assessed by the HDI. Out of 90 cotton-growing countries in 2016, 29 were ranked as LHDCs under the HDI, and 11 of these LHDCs produced VSS-compliant cotton. These LHDCs accounted for 6% of the total cotton grown in 2016 and were responsible for 6% of the total VSS-compliant cotton produced worldwide that same year, according to our analysis. There have been promising signs of growth in VSS-compliant production among these LHDCs: looking at the 2010–2016 time period, VSS-compliant cotton production in LHDCs increased at a CAGR of approximately 42%. Of these, CmiA was the VSS with the largest volume of cotton production coming from LHDCs, followed by organic, BCI, and Fairtrade in 2016.

*Expanding VSS-compliant cotton production in LHDCs could result in important environmental and societal development benefits via the adoption of more sustainable agricultural practices, such as lower synthetic pesticide use via the adoption of integrated pest management and the improvement of health and safety and labour rights for cotton workers and smallholder farmers. These VSSs, paired with complementary and fair trade policies, could have the potential to contribute to lifting millions out of poverty and be an important development vehicle within cotton-producing LHDCs when properly implemented.*

There are promising signs of VSS expansion potential among countries that are already producing significant shares of the world's cotton and have begun to adopt VSSs. The top cotton-growing countries, which include India, China, and the United States, offer good prospects for increased sustainable cotton production, followed by Pakistan and Uzbekistan, considering their total cotton output and the existing presence of VSSs. In terms of the opportunities for expanding VSS-compliant cotton production in LHDCs and the potential for maximizing sustainable development outcomes, the countries that show the most significant prospects for growth in light of their share of total cotton production, the presence of VSSs, and their HDI value are Mali and Burkina Faso. These are followed by Benin, Nigeria, and Sudan, according to our analysis based on 2016 figures.<sup>14</sup> However, unfair international trade rules concerning production-support subsidies implemented by main producing countries might need to be reformed to support fair trade competition. In addition, support programs for cotton-producing LHDCs should be established to maximize their benefit from VSS-compliant markets. The smallholder cotton farmers in

Asia dominates the production and consumption of cotton. A large share of China's cotton production is for domestic consumption.

**Figure 5. Trade flows of the largest cotton-producing countries in 2016, in tonnes**<sup>13,78,81</sup>



*Note: These five countries represented 77.45% of total cotton lint production in 2016. The percentage in brackets for each country represents the proportion of the total volume of cotton exported in 2016 by the five countries. The percentage in brackets of each region represents the proportion of the total volume of cotton lint imported in 2016 from the 5 countries.*

the main producing countries continue to experience poverty, and pursuing greater VSS compliance might contribute to improving their livelihoods.<sup>32–34</sup>

Cotton is a fibre with a human face, and there are many important issues to address to improve its competitiveness and sustainability. For instance, yield disparities between the largest producing countries, China and India (1,800 kg/ha versus 500 kg/ha), are striking; poverty among cotton farmers is rampant; child and forced labour are ongoing; and the proliferation of GM cotton creates seed dependencies on corporations. The near disappearance of the Aral Sea is an example of the cotton water mismanagement legacy, and its cultivation consumes 10% of agrochemicals despite being grown on 2.5% of the world's agricultural land.<sup>16,35–39</sup> Coordinated action from governments, buyers, producers, VSSs, and industry associations is needed to address these major issues that affect the cotton sector.

VSSs have been instrumental in stimulating collaboration across the cotton supply chain to turn the sector around.<sup>40</sup> BCI is enabling sustainable cotton to become mainstream: with increased sourcing commitments from brands, their goal is to have 30% of all cotton produced be BCI verified by 2020. CmiA focuses on vulnerable African smallholders, while organic supports non-GM cotton farmers in eliminating pesticides, and Fairtrade provides farmers with guaranteed minimum returns and premiums.<sup>41</sup> As a whole, these VSSs have established an ecosystem of complementary priorities that has enabled them to reach and work with 2.6 million cotton farmers across the globe to move the sector toward sustainability.<sup>42–46</sup> Clearly, VSS will continue playing an important role in ensuring that cotton fibre remains competitive and sustainable in the textile sector.

### FIGURE 3 ESTIMATIONS MADE FOR CALCULATING SOURCING VOLUMES OF COTTON FOR THE FOLLOWING COMPANIES:

#### C&A Group

- **Purchase Volume Total 2017 (120,000 tonnes):** This figure was obtained through personal communications with a team member of the Global Circular Economy team, in 2018.
- **Purchase Volume Standard-Compliant Certified 2017 (81,600 tonnes):** This figure was obtained by taking the 53% of VSS-compliant cotton purchased (including BCI and organic)<sup>91</sup> from the total sourcing volume, as reported by the company in 2017.

#### H&M

- **Purchase Volume Total 2017 (200,000 tonnes):** This figure was obtained from an industry insider, who estimated that overall cotton used by the company was around 200,000 tonnes a year, in 2012.<sup>92</sup> This data was used as a proxy for 2017.
- **Purchase Volume Standard-Compliant Certified 2017 (118,000 tonnes):** This figure was obtained by taking the 59% of VSS-compliant cotton purchased by the company in 2017 (including BCI, organic, and recycled)<sup>93</sup> from the total sourcing volume estimated for the same year.

#### Inditex

- **Purchase Volume Total 2017 (188,332 tonnes):** In 2016, the company reported the production of 36.7 million pieces of clothing made with 5,000 tonnes of organic cotton.<sup>94</sup> This ratio (pieces of clothes/used cotton) was used to estimate the total volume of cotton used for the production of 1.38 billion pieces of clothing in the market, as reported by the company in 2016.<sup>95</sup> This figure was used as a proxy for 2017.
- **Purchase Volume Standard-Compliant Certified 2017 (7,977 tonnes):** This figure was estimated by converting 58.7 million organic cotton garments released in the market, as reported by the company in 2017,<sup>96</sup> into tonnes of cotton, by using the ratio described above.

#### Marks and Spencer

- **Purchase Volume Total 2017 (46,939 tonnes):** This figure was obtained from the average cotton consumption reported by the company in 2018.<sup>97</sup> This data was used as a proxy for 2017. The data source has been updated for the most recent year (2019), and 2018 data is no longer available. We kept 2018 data for consistency with data illustrated from other buyers.
- **Purchase Volume Standard-Compliant Certified 2017 (23,000 tonnes):** This figure was obtained by taking the 49% of VSS-compliant cotton reported by the company in 2017 (it includes BCI, Fairtrade, organic, and recycled)<sup>98</sup> from the total cotton used in the same year.

#### Nike

- **Purchase Volume Total 2017 (70,065 tonnes):** This figure was obtained by converting 70 million kilograms of cotton used in 2017, as reported by the company,<sup>99</sup> into tonnes.
- **Purchase Volume Standard-Compliant Certified 2017 (37,881 tonnes):** This figure was obtained by converting 37.8 million kilograms of VSS-compliant cotton used in 2017, as reported by the company,<sup>99</sup> into tonnes. (This includes organic, BCI, and recycled.)

#### Otto group

- **Purchase Volume Standard-Compliant Certified 2017 (28,035 tonnes):** This figure was obtained from the company's *Annual Report 2017–2018*.<sup>100</sup> It includes CmiA and organic cotton.

#### Tchibo

- **Purchase Volume Total 2017 (20,625 tonnes):** This figure was obtained by taking the volume of VSS-compliant cotton in 2017, estimated below, which represents 80% of total purchases by the company in 2017, to calculate the 100%.
- **Purchase Volume Standard-Compliant Certified 2017 (16,500 tonnes):** This figure was estimated by calculating the average volumes of VSS-compliant cotton sourced by the company, according to the leaderboard of organic and preferred cotton from Textile Exchange in 2018.<sup>101</sup> We assumed that Tchibo's sourcing volume is in the range of 5,000–28,000 tonnes, compared to sourcing volumes from similar companies listed in the rankings.<sup>B</sup>

As per communications with the sustainability team (2018), Tchibo sourced an estimated 80% of its total cotton purchases from sustainable sources in 2017.

<sup>B</sup> Such as Inditex and Otto Group (see estimations for these companies)

## ENDNOTES

1. Grishanov, S. (2011). Structure and properties of textile materials (Ch. 2). In Clark, M. (Ed.), *Handbook of textile and industrial dyeing* (Vol. 1) (pp. 28–63). Woodhead Publishing. <http://www.sciencedirect.com/science/article/pii/B9781845696955500027>
2. Mordor Intelligence. (2018). *Global cotton market – Segmented by geography – Growth, trends, and forecast (2019–2024)*. <https://www.mordorintelligence.com/industry-reports/cotton-market>
3. Lu, S. (2018). *Market size of the global textile and apparel industry: 2016 to 2021/2022*. FASH455 Global Apparel & Textile Trade and Sourcing. <https://shenglufashion.com/2018/12/18/market-size-of-the-global-textile-and-apparel-industry-2016-to-2021-2022/>
4. FashionUnited. (2019). *Global fashion industry statistics*. <https://fashionunited.com/global-fashion-industry-statistics/>
5. Tridge. (2019). *HS 52 Cotton*. <https://www.tridge.com/trades/HS1992/52-cotton/export>
6. Innovation Forum. (2015). *Sustainable and ethical cotton sourcing*. Innovation Forum: Cotton Briefing, p. 16. <https://www.slideshare.net/Tobiaswebb/if-cotton-report-final>
7. Workman, D. (2019). *Cotton exports by country*. World's Top Exports. <http://www.worldstopexports.com/cotton-exports-by-country/>
8. Workman, D. (2018). *Cotton imports by country*. World's Top Exports. <http://www.worldstopexports.com/cotton-imports-by-country/>
9. Organisation for Economic Co-operation and Development & Food and Agriculture Organization of the United Nations. (2019). *OECD-FAO agricultural outlook (Edition 2019)*. <https://doi.org/10.1787/eed409b4-en>
10. Vogel, S., Mera, C., Clack, C., & Magdovitz, M. (2019, January). *Agri commodity markets research*. Rabobank, p. 12. [https://www.rabobank.com/downloads/research/ACMR\\_Monthly\\_2019\\_January\\_Final.pdf](https://www.rabobank.com/downloads/research/ACMR_Monthly_2019_January_Final.pdf)
11. Cotton Lifestyle Monitor. (2019, August). *Monthly Economic Letter*. <https://lifestylemonitor.cottoninc.com/monthly-economic-letter-august-2019/>
12. Organisation for Economic Co-operation and Development & Food and Agriculture Organization of the United Nations. (2018). Cotton (Ch. 10). In *OECD-FAO Agricultural outlook 2019-2028* (p. 217–226). OECD Publishing/FAO. [https://www.oecd-ilibrary.org/docserver/agr\\_outlook-2019-en.pdf?expires=1593001692&id=id&accname=guest&checksum=DC3BD4E56790007677C7B4F06C8DE618](https://www.oecd-ilibrary.org/docserver/agr_outlook-2019-en.pdf?expires=1593001692&id=id&accname=guest&checksum=DC3BD4E56790007677C7B4F06C8DE618)
13. Organisation for Economic Co-operation and Development & Food and Agriculture Organization of the United Nations. (2016). Cotton. In *OECD-FAO Agricultural outlook 2016-2025* (pp. 118–133). OECD Publishing/FAO. <http://www.fao.org/3/a-BO104e.pdf>
14. Lernoud, J., Potts, J., Sampson, G., Schlatter, B., Huppe, G., Voora, V., Willer, H., Wozniak, J., & Dang, D. (2018). *The state of sustainable markets 2018 – Statistics and emerging trends*. International Trade Centre. <http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/Sustainability%202018%20layout-FIN-web2.pdf>
15. Parcerisa, C. (2018). *Organic cotton has a long way to go in Latin America*. Fashion United. <https://fashionunited.uk/news/business/organic-cotton-has-a-long-way-to-go-in-latin-america/2018101139390>
16. Cotton UP. (2018). *Why source sustainable cotton?* <http://cottonupguide.org/why-source-sustainable-cotton/challenges-for-cotton/>
17. Routh, L. (2017). *Why climate change is material for the cotton industry*. GreenBiz. <https://www.greenbiz.com/article/why-climate-change-material-cotton-industry>
18. Hebbar, K. B., Venugopalan, M. V., Prakash, A. H., & Aggarwal, P. K. (2013). Simulating the impacts of climate change on cotton production in India. *Climatic Change*, 118 (3–4), 701–713.
19. International Trade Centre. (n.d.). *The organic cotton market*. <http://www.intracen.org/The-organic-cotton-market/>

20. Potts, J., Lynch, M., Wilking, A., Huppe, G., Cunningham, M., & Voora, V. (2014). *State of sustainability initiatives review 2014: Standards and the green economy*. International Institute for Sustainable Development & International Institute for Environment and Development. <https://www.iisd.org/library/state-sustainability-initiatives-review-2014-standards-and-green-economy#:~:text=The%20State%20of%20Sustainability%20Initiatives%20Review%202014%3A%20Standards%20and%20the,across%20ten%20different%20commodity%20sectors>.
21. Editorial Team in Sustainability. (2018). *The trouble with cotton sustainability*. Knowledge at Work. <https://www.ulehssustainability.com/blog/sustainability/the-trouble-with-cotton-sustainability/>
22. Food and Agriculture Organization of the United Nations. (2017). Producer prices – Annual. <http://www.fao.org/faostat/en/#data/PP>
23. Textile Exchange. (2018). *Over 36 major brands pledge to achieve sustainable cotton by 2025*. <https://textileexchange.org/over-36-major-brands-pledge-to-achieve-sustainable-cotton-by-2025/>
24. Nielsen. (2018). *Sustainable shoppers buy the change they wish to see in the world*. <http://www.nielsen.com/us/en/insights/reports/2018/the-education-of-the-sustainable-mindset>
25. Cotton UP. (2018). *The business case for sustainable cotton*. <http://cottonupguide.org/why-source-sustainable-cotton/the-business-case-for-sustainable-cotton/>
26. Wilson, J. (2018). *Consumer preferences continue to shift toward sustainability, market research shows*. Triple Pundit. <https://www.triplepundit.com/story/2018/consumer-preferences-continue-shift-toward-sustainability-market-research-shows/55496>
27. Cotton Lifestyle Monitor. (2019). *Why should brands be paying attention?* Cotton Lifestyle Monitor. <https://lifestylemonitor.cottoninc.com/repositioning-for-the-conscious-consumer/>
28. Cotton Incorporated. (2019). *Consumer and retail insights*. <https://www.cottonworks.com/wp-content/uploads/2019/02/Cotton-Incorporated-Market-Research-MAGIC-2019.pdf>
29. NewForesight. (2015). *Today's cotton market's challenges can turn into tomorrow's opportunities*. <https://www.newforesight.com/todays-cotton-markets-challenges-can-turn-into-tomorrows-opportunities/>
30. Somayajula, N. (2019). *Forced labor lives on in Uzbekistan's cotton fields*. Human Rights Watch. <https://www.hrw.org/news/2019/04/16/forced-labor-lives-uzbekistans-cotton-fields>
31. International Labour Organization. (2019). *Activists welcome progress towards eradication of forced labour, child labour in Uzbekistan*. ILO News. [http://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS\\_681780/lang--en/index.htm](http://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_681780/lang--en/index.htm)
32. Fairtrade Foundation. (2019). *Cotton farmers*. <https://www.fairtrade.org.uk/Farmers-and-Workers/Cotton>
33. The Guardian. (2014, May 5). *India's farmer suicides: are deaths linked to GM cotton? – in pictures*. <https://www.theguardian.com/global-development/gallery/2014/may/05/india-cotton-suicides-farmer-deaths-gm-seeds>
34. Cororaton, C. B. & Orden, D. (2008). *Pakistan's cotton and textile economy: Intersectoral linkages and effects on rural and urban poverty* (Research Report 158). International Food Policy Research Institute. <https://ageconsearch.umn.edu/record/47659/files/rr158.pdf>
35. index mundi. (2018). *Cotton yield by country in KG/HA – Country rankings*. <https://www.indexmundi.com/agriculture/?commodity=cotton&graph=yield>
36. Hoskins, T. (2014, October 1). *Cotton production linked to images of the dried up Aral Sea basin*. *The Guardian*. <https://www.theguardian.com/sustainable-business/sustainable-fashion-blog/2014/oct/01/cotton-production-linked-to-images-of-the-dried-up-aral-sea-basin>
37. Uzbek-German Forum for Human Rights. (2012). *A systemic problem: State-sponsored forced labour in Uzbekistan's cotton sector continues in 2012*, p. 58. [http://www.cottoncampaign.org/uploads/3/9/4/7/39474145/systemicproblem-forcedlabour\\_uzbekistan\\_cotton\\_continues.pdf](http://www.cottoncampaign.org/uploads/3/9/4/7/39474145/systemicproblem-forcedlabour_uzbekistan_cotton_continues.pdf)
39. Plant Production and Protection Division. (2015). *Measuring sustainability in cotton farming systems*. FAO & ICAC. <http://www.fao.org/publications/card/en/c/c2658c57-5edd-4bd2-bc0d-024ccd8a9785/>
40. Joshi, R. (2015). *Cotton-sector supply chain moves towards sustainable future*. <http://www.intracen.org/article/Cotton-sector-supply-chain-moves-towards-sustainable-future/>

41. Better Cotton Initiative. (2016). *Annual report 2016*, p. 33. [https://bettercotton.org/wp-content/uploads/2013/12/5784-AnnualReport\\_PDF\\_MF\\_v5.pdf](https://bettercotton.org/wp-content/uploads/2013/12/5784-AnnualReport_PDF_MF_v5.pdf)
42. Voora, V. A. (2016, November). *A blueprint for enabling sustainable commodities: Voluntary sustainability standards and the cotton sector*. International Institute for Sustainable Development. [https://www.iisd.org/ssi/wp-content/uploads/2019/09/Cotton-sector\\_publication.pdf](https://www.iisd.org/ssi/wp-content/uploads/2019/09/Cotton-sector_publication.pdf)
43. Fairtrade International UK. (2019). *About cotton*. <https://www.fairtrade.org.uk/Farmers-and-Workers/Cotton/About-Cotton>
44. Cotton made in Africa (CmiA). (2017). *Cotton made in Africa annual report 2017*. Aid by Trade Foundation, p. 36. <https://cottonmadein africa.org/wp-content/uploads/2020/05/CmiA-Annual-Report-2017.pdf>
45. Better Cotton Initiative. (2017). *Annual report 2017*. <https://2017.bciannualreport.org/>
46. Textile Exchange. (2018). *2018 organic cotton market report*. <https://textileexchange.org/downloads/2018-organic-cotton-market-report/>
47. Cotton Australia. (2020). *Products and uses*. <https://cottonaustralia.com.au/uses-of-cotton>
48. World Wild Fund. (2020). *Sustainable agriculture: Cotton*. <https://www.worldwildlife.org/industries/cotton>
49. Gaille, B. (2018). *21 China textile industry statistics and trends*. <https://brandongaille.com/21-china-textile-industry-statistics-and-trends/>
50. United Nations Department of Economic and Social Affairs. (2019). *UN Comtrade Database*. <https://comtrade.un.org/data/>
51. Fibre2Fashion. (2019). *Expansion & shifting of Chinese & Indian textile manufacturing to emerging economies*. <https://www.fibre2fashion.com/industry-article/8354/expansion-shifting-of-chinese-indian-textile-manufacturing-to-emerging-economies>
52. International Cotton Advisory Committee. (2020). *Global stocks expected to drop by 1% in 2019/20 season*. <https://icac.org/News/NewsDetails?NewsId=2326&YearId=2020>
53. Biswas, S. (2020, April 7). Will coronavirus lockdown cause food shortages in India? *BBC News*. <https://www.bbc.com/news/world-asia-india-52176564>
54. Purohit, K. (2020, April 6). Coronavirus lockdown: As India bleeds billions in losses, some exporters eye edge over China. *This Week in Asia*. <https://www.scmp.com/week-asia/economics/article/3078657/coronavirus-lockdown-india-bleeds-billions-losses-some>
55. Lu, S. (2020). *Global apparel & textile trade and sourcing*. FASH455. <https://shenglufashion.com/2018/12/18/market-size-of-the-global-textile-and-apparel-industry-2016-to-2021-2022/>
56. Avins, J. (2015). Why has the world stockpiled enough cotton for 127 billion t-shirts? *QUARTZ*. <https://qz.com/573860/why-has-the-world-stockpiled-enough-cotton-for-127-billion-t-shirts/>
57. Food and Agriculture Organization of the United Nations. (2015). *Measuring sustainability in cotton farming systems: Towards a guidance framework*. <http://www.fao.org/3/a-i4170e.pdf>
58. Kelly, A. (2020, April 2). Primark and Matalan among retailers allegedly cancelling £2.4bn orders in ‘catastrophic’ move for Bangladesh. *The Guardian*. <https://www.theguardian.com/global-development/2020/apr/02/fashion-brands-cancellations-of-24bn-orders-catastrophic-for-bangladesh>
59. International Cotton Advisory Committee. (2020, April 1). *Early impacts of Covid-19 are crippling the cotton supply chain*. <https://icac.org/News/NewsDetails?NewsId=2330&YearId=2020>
60. Alam, J. (2020). Bangladesh garment makers say \$3 billion in orders lost due to coronavirus. *Time*. <https://cupure.com/Bangladesh-Garment-Makers-Say-3-Billion-in-Orders-Lost-Due-to-Coronavirus.html>
61. United States Department of Agriculture. (2019). *Cotton sector at a glance*. <https://www.ers.usda.gov/topics/crops/cotton-wool/cotton-sector-at-a-glance/>
62. Preuss, S. (2019, July 25). Cotton prices remain under pressure. *Fashion United*. <https://fashionunited.uk/news/business/cotton-prices-remain-under-pressure/2019072544430>

63. Maltais, K. (2020, March 23). Cotton growers were recovering from trade war. Then coronavirus hit. *Wall Street Journal*. <https://www.wsj.com/articles/cotton-growers-were-just-recovering-from-trade-war-then-coronavirus-hit-11584967536>
64. Fairtrade Canada. (2020). *About cotton*. <http://www.fairtrade.ca/en-CA/Farmers-and-Workers/Cotton/About-Cotton>
65. Drew, D., & Yehounme, G. (2017). *The apparel industry's environmental impact in 6 graphics*. World Resources Institute. <https://www.wri.org/blog/2017/07/apparel-industrys-environmental-impact-6-graphics>
66. Radhakrishnan, S. (2017). Sustainable cotton production (Ch. 2). In S. S. Mutu (Ed.), *Sustainable fibres and textiles* (Vol. 1) (pp. 21–67). Woodhead Publishing.
67. Organic Cotton (2020). *The risks of cotton farming*. <https://organiccotton.org/oc/Cotton-general/Impact-of-cotton/Risk-of-cotton-farming.php>
68. Kranthi, K. R., & Stone, G. D. (2020). Long-term impacts of Bt cotton in India. *Nature Plants*, 6, 188–196. <https://www.nature.com/articles/s41477-020-0615-5>
69. Simpson, C. (2011). Victoria's Secret revealed in child picking Burkina Faso cotton. *Bloomberg Markets Magazine*. <https://www.bloomberg.com/news/articles/2011-12-15/victoria-s-secret-revealed-in-child-picking-burkina-faso-cotton>
70. Uzbek-German Forum for Human Rights & Cotton Campaign. (2012). *Review of the 2012 cotton harvest in Uzbekistan*. [http://www.cottoncampaign.org/uploads/3/9/4/7/39474145/review2012\\_cottonharvestuzbekistan.pdf](http://www.cottoncampaign.org/uploads/3/9/4/7/39474145/review2012_cottonharvestuzbekistan.pdf)
71. International Institute for Sustainable Development. (2017). *Five countries participating in South-South trilateral cooperation on cotton production*. <http://sdg.iisd.org/news/five-countries-participating-in-south-south-trilateral-cooperation-on-cotton-production/>
72. Natural Defense Resource Council. (2012). *Fiber selection: Understanding the impact of different fibers is the first step in designing environmentally responsible apparel*. <https://www.nrdc.org/sites/default/files/CBD-Fiber-Selection-FS.pdf>
73. International Trade Center. (2020). *Sustainability Standards Map*. <https://www.sustainabilitymap.org/home>
74. Better Cotton Initiative. (2018). *Farmer results: 2017-2018 season*. [https://bettercotton.org/wp-content/uploads/2019/10/BCI-Farm-Results\\_Environmental-and-Economic\\_Infographic.pdf](https://bettercotton.org/wp-content/uploads/2019/10/BCI-Farm-Results_Environmental-and-Economic_Infographic.pdf)
75. Ecotextile. (2017). *Integrity of Indian organic cotton questioned*. <https://www.ecotextile.com/2017090722949/materials-production-news/integrity-of-indian-organic-cotton-questioned.html>
76. Landzettel, M. (2016, July 6). Organic cotton helps Indian farmers out of GM cotton trap. *Oregon Tilth*. <https://tilth.org/stories/organic-cotton-helps-indian-farmers-out-of-gm-cotton-trap/>
77. Donaldson, T. (2017). Report: The truth about organic cotton and its impacts. *Sourcing Journal*. <https://sourcingjournal.com/topics/raw-materials/report-truth-organic-cotton-impacts-68512/>
78. Food and Agricultural Organization of the United Nations. (2016). Crops. FAOSTAT. <http://www.fao.org/faostat/en/#data/QC>
79. Monfreda, C., Ramankutty, N., & Foley, J. A. (2008, March). Farming the planet: 2. Geographic distribution of crop areas, yields, physiological types, and net primary production in the year 2000. *Global Biogeochemical Cycles*, 22, 1. <https://doi.org/10.1029/2007GB002947>
80. Tayleur, C., Vickery, J., Butchart, S., Corlet W. C., Buchanan, G., Sanderson, F., Milder, J., Thomas, D., Tracewski, L., Green, R. Blamford, A., & Ducharme, H. (2017, October 29). *GIS data for: Where are commodity crops certified, and what does it mean for conservation and poverty alleviation?* (Version 2). Mendeley Data. <https://data.mendeley.com/datasets/mpdf6ytswm/2>
81. Resource Trade. Earth. (2017). *Exploring interdependencies in global resource trade*. Chatham House. <https://resourcetrade.earth/>
82. United States Department of Agriculture. (2020, June). *Cotton: World markets and trade*. <https://apps.fas.usda.gov/psdonline/circulars/cotton.pdf>
83. Reuters. (2020, May 8). Trump 'torn' over US-China trade deal as officials push to fulfill its terms. *CNBC*. <https://www.cnbc.com/2020/05/09/us-china-trade-trump-torn-over-phase-one-deal.html>

84. International Cotton Advisory Committee. (2019, December). *Production and trade subsidies affecting the cotton industry*. [https://icac.org/Content/PublicationsPdf%20Files/0a348d9d\\_7eb4\\_44ff\\_b237\\_f767b4c84c4e/Cotton\\_subsidies2019.pdf.pdf](https://icac.org/Content/PublicationsPdf%20Files/0a348d9d_7eb4_44ff_b237_f767b4c84c4e/Cotton_subsidies2019.pdf.pdf)
85. Glauber, J. W., Hepburn, J., Laborde, D., & Murphy, S. (2020, April). *What national farm policy trends could mean for efforts to update WTO rules on domestic support*. International Institute for Sustainable Development & International Food Policy Research Institute. <https://www.iisd.org/sites/default/files/publications/farm-policy-trends-en.pdf>
86. World Trade Organization. (n.d.). *Agriculture and development: Cotton*. [https://www.wto.org/english/tratop\\_e/agric\\_e/cotton\\_e.htm](https://www.wto.org/english/tratop_e/agric_e/cotton_e.htm)
87. Bavier, J. (2017, December 8). How Monsanto's GM cotton sowed trouble in Africa. *Reuters Investigates*. <https://www.reuters.com/investigates/special-report/monsanto-burkina-cotton/>
88. Halliday, S. (2019, June 25). *Better Cotton initiative hails H&M as leader in sustainable cotton use*. Fashion Network. <https://in.fashionnetwork.com/news/Better-cotton-initiative-hails-h-m-as-leader-in-sustainable-cotton-use,1113173.html>
89. Wright, B. (2019, June 20). Cotton made in Africa now used in more than 100m items. *Just-Style*. [https://www.just-style.com/news/cotton-made-in-africa-now-used-in-more-than-100m-items\\_id136456.aspx](https://www.just-style.com/news/cotton-made-in-africa-now-used-in-more-than-100m-items_id136456.aspx)
90. Cotton made in Africa (CmiA). (2018). *Cotton made in Africa annual report 2018*. [https://issuu.com/cottonmadeinafrica/docs/abt041\\_jahresbericht-en\\_190618\\_web\\_interaktiv](https://issuu.com/cottonmadeinafrica/docs/abt041_jahresbericht-en_190618_web_interaktiv)
91. C&A (2018). *Global sustainability report 2018*. <http://sustainability.c-and-a.com/uk/en/sustainability-report/2018/sustainable-products/sustainable-materials/more-sustainable-cotton/>
92. Siegle, L. (2012, April 7). Is H&M the new home of ethical fashion? *The Guardian*. <https://www.theguardian.com/business/2012/apr/07/hennes-mauritz-h-and-m>
93. H&M group. (2017). *Sustainability report 2017*. [https://about.hm.com/content/dam/hmgroup/groupsite/documents/masterlanguage/CSR/reports/2017%20Sustainability%20report/HM\\_group\\_SustainabilityReport\\_2017\\_FullReport.pdf](https://about.hm.com/content/dam/hmgroup/groupsite/documents/masterlanguage/CSR/reports/2017%20Sustainability%20report/HM_group_SustainabilityReport_2017_FullReport.pdf)
94. Inditex. (2016). *Memoria anual 2016. Materias primas más sostenibles*. [http://static.inditex.com/annual\\_report\\_2016/nuestras-prioridades/compromiso-con-la-excelencia-de-nuestros-productos/materias-primas-mas-sostenibles.php](http://static.inditex.com/annual_report_2016/nuestras-prioridades/compromiso-con-la-excelencia-de-nuestros-productos/materias-primas-mas-sostenibles.php)
95. Inditex. (2016). *Memoria anual 2016. Indicadores medioambientales*. [http://static.inditex.com/annual\\_report\\_2016/balance-de-sostenibilidad/indicadores-de-sostenibilidad/indicadores-medioambientales.php](http://static.inditex.com/annual_report_2016/balance-de-sostenibilidad/indicadores-de-sostenibilidad/indicadores-medioambientales.php)
96. Inditex. (2017). *Annual report 2017*. [https://static.inditex.com/annual\\_report\\_2017/assets/pdf/memoria\\_en.pdf](https://static.inditex.com/annual_report_2017/assets/pdf/memoria_en.pdf)
97. Marks and Spencer. (2020). *Raw materials and commodities: Cotton*. <https://corporate.marksandspencer.com/sustainability/clothing-and-home/product-standards/raw-materials-commodities/cotton>
98. Marks and Spencer. (2018). *Plan A 2025: Performance summary*. [https://corporate.marksandspencer.com/annual-report-2018/mands\\_plana\\_2018\\_performance.pdf](https://corporate.marksandspencer.com/annual-report-2018/mands_plana_2018_performance.pdf)
99. Nike, Inc. (2017). *Maximum performance minimum impact*. [https://s1.q4cdn.com/806093406/files/doc\\_downloads/2018/SBR-Final-FY16-17.pdf](https://s1.q4cdn.com/806093406/files/doc_downloads/2018/SBR-Final-FY16-17.pdf)
100. Otto Group. (2018). *Hello values: Why business needs values. Annual report 2017/18*. [https://www.ottogroup.com/media/docs/en/geschaeftsbericht/Otto\\_Group\\_Annual\\_Report\\_2017\\_18\\_EN.pdf](https://www.ottogroup.com/media/docs/en/geschaeftsbericht/Otto_Group_Annual_Report_2017_18_EN.pdf)
101. Textile Exchange. (2018). *Preferred fiber & materials benchmark: Annual insights report 2018*. <https://textileexchange.org/wp-content/uploads/2018/11/2018-Preferred-Fiber-Materials-Benchmark-Insights-Report.pdf>
102. United Nations Forum on Sustainability Standards. (2013). *Voluntary sustainability standards: Today's landscape of issues and initiatives to achieve public policy objectives*, p. 4. [https://unfss.org/wp-content/uploads/2012/05/unfss-report-initiatives-2\\_draft\\_lores.pdf](https://unfss.org/wp-content/uploads/2012/05/unfss-report-initiatives-2_draft_lores.pdf)
103. Textile Exchange. (2017). *Quick guide to organic cotton*. <https://store.textileexchange.org/product/quick-guide-to-organic-cotton/>

The Sustainable Commodities Marketplace Series provides a market performance overview and outlook for key agricultural commodities that comply with a number of voluntary sustainability standards (VSSs), focusing on global sustainable consumption and production. Each year, the series focuses on a different overarching theme, with individual reports for that year devoted to providing a market update for a chosen commodity. These reports are designed to be accessible and relevant for a range of audiences, including supply chain decision makers, procurement officers, policy-makers and producers. The series builds on *The State of Sustainable Markets 2018: Statistics and Emerging Trends*, a joint publication from IISD, the International Trade Center (ITC), and the Research Institute of Organic Agriculture (FiBL), which examines over a dozen sustainability standards for various commodities.

This *Global Market Report* analyzes recent trends in cotton production, consumption, trade flows, and other relevant areas. The report also emphasizes the potential for expanding VSS-compliant production in Low Human Development Countries, given factors such as share of global cotton production, VSS presence, and Human Development Index value. It uses 2016 data across all three factors, given that this is the latest year with data available for VSS-compliant cotton when conducting the analysis. By comparing the growth rates and patterns of standard-compliant versus conventional consumption and production of cotton, this report provides insights on how sustainable and conventional markets are performing at a global level, along with highlighting which countries have the potential to produce more VSS-compliant cotton.

The State of Sustainability Initiatives (SSI) is an international transparency and capacity-building project that aims to improve strategic planning and sustainable development outcomes related to VSSs. It does so by providing in-depth, credible, and needs-based information on VSS characteristics, market performance, and potential contributions to addressing development challenges.

External Peer Reviewers: Valérie Vencatachellum, Institute for Global Change  
Bart Vollaard, Organic Cotton Accelerator

©2020 The International Institute for Sustainable Development  
Published by the International Institute for Sustainable Development.

#### Head Office

111 Lombard Avenue, Suite 325  
Winnipeg, Manitoba  
Canada R3B 0T4

Tel: +1 (204) 958-7700  
Website: [www.iisd.org](http://www.iisd.org)  
Twitter: @IISD\_news

In collaboration with ITC and FiBL



**FiBL**

With the support of the Swedish government



[iisd.org](http://iisd.org)

