

Sustainable Cotton Production: Challenges and Opportunities

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World Cotton Day 2020 will celebrate on 7 October 2020, stakeholders from the global cotton community will come together to educate target audiences on the many advantages of cotton from its qualities as a natural fiber to the many benefits people obtain from its production, transformation, trade and consumption around the world. World Cotton Day is an opportunity to show the positive impact of cotton and will continue to have in future.

Government of Bangladesh also decided to join in this global event to promote this important industrial as well as cash crop. We also feel proud our father of the nation Bangabandhu Sheikh Mujibur Rahman established Cotton Development Board just after the independence of Bangladesh (14 December 1972) with the mandate of cotton research and development.

This year's World Cotton Day 2020 celebration coincide with the birth centenary celebration of Bangabandhu Sheikh Mujibur Rahman. The UN General Assembly, UNESCO, has decided to jointly celebrate the Mujib Year with Bangladesh at the UNESCO 40th General Assembly. The decision was made in the presence of all UNESCO members on November 12–27 in Paris, held on November 25, 2019.

Washington DC Mayor Muriel Bowser has issued a proclamation about Mujib year. In the proclamation he has declared Mujib Year from March 17, 2020 to March 17, 2021, marking the birth centenary celebration of Bangabandhu Sheikh Mujibur Rahman. So this year World Cotton Day celebration has additional importance to Bangladesh.

The cotton plant includes 40 species in the genus *Gossypium* (family Malvaceae). Species of cotton grown for commercial purposes are *G. hirsutum* ("Upland cotton", native to Central America, the Caribbean and South Florida), *G. barbadense* ("Creole cotton" or "Sea island cotton", South America) known as New World species, *G. arboreum* ("Tree cotton", South Asia), and *G. herbaceum* ("Levant cotton", South Africa), called Old World or Asiatic cottons (UNCTAD, 2005). Cotton is grown around the world from the tropics to latitudes greater than 40° (Uzbekistan and Xinjiang Province in China). The basic conditions required for the successful production of cotton include a long frost-free period, a temperature range of 18–32° C and 600–1200 mm of water over the growing cycle, which typically lasts 125–175 days (FAO, 2012). Cotton exhibits a certain degree of tolerance to salt and drought and it is therefore grown in arid and semi-arid regions. However, higher and consistent yield and fibre quality levels are generally obtained with irrigation or sufficient rainfall.

The cotton value chain begins with the farmer, who grows cotton and harvests "seed cotton" from the bolls of the cotton plant. Cotton production systems vary globally, ranging from labour-intensive systems in Africa and Asia to highly mechanized systems in Australia, Brazil and the United States. By weight, seed cotton is composed of roughly one-third cotton lint and two-thirds cottonseed. The cotton lint is separated from the cottonseed ("ginning") using a cotton gin. Cotton lint is then sold to spinners who produce yarn. Textile manufacturers transform yarns into fabric by knitting or weaving the yarns and applying dyes and finishes. In the final stage, end

products (garments, home textiles etc.) are made from fabrics. On the other hand from cotton seed we get edible oil and oil cake as well as we can use dry cotton plant as cooking fuel.

The cotton sector contributes significantly to the economies of many developing countries, notably the least-developed countries (LDCs), as a major source of livelihood and income for millions of rural smallholders worldwide. In 2017, world production of cotton was valued at about USD 50 billion, while global trade stood at USD 17 billion. It is estimated that around 100 million family farmers depend directly on the cotton industry across 75 countries. As a result, through the generated economic activities and the impact on millions of rural smallholders and workers, cotton can make a positive contribution to the achievements of the 2030 Agenda for Sustainable Development.

This side event will depict plausible scenarios of key market trends that are likely to affect the cotton market over the coming decade, including the relationship between man-made fibres and natural fibres as well as the extent to which technology can alter that relationship. This can serve to inform and support policy-making processes at various levels in the formulation and execution of policies and investment strategies to ensure a more sustainable cotton sector.

What is sustainable cotton?

‘Sustainable’ is defined as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs”.

Sustainable cotton is therefore grown in a way that can maintain levels of production with minimal environmental impact, can support viable producer’s livelihoods and their communities, and can do so in the face of long-term ecological constraints and socioeconomic pressures.

Why Sustainable Cotton?

Cotton accounts for almost 40% of global textile production and the industry supports an estimated 250 million livelihoods. Yet this sector continues to face significant agronomic and social challenges. Currently, only 12-15% of cotton is grown sustainably, therefore securing a sustainable and transparent supply in the future is vital. Cotton is produced in more than 75 countries. Cotton cultivation represents over 31 million hectares or 2.4% of global arable land, involving about 20 million farmers who completely depend on cotton production and another 30 million farmers who include cotton into their rotation scheme. Cotton cultivation has been estimated to consume 11% of the world’s pesticides while it is grown on only 2.4% of the world’s arable land. The environmental impact of cotton production is increasingly in the spotlight with the main problems being poisoning of the environment including human health by using chemical pesticides and fertilizers.

One kilogram of lint cotton, roughly the amount required to produce one T-shirt and a pair of jeans.

Managing reputational risk and integrating sustainability into the cotton supply chain is more important now than ever. There are much efficiency to be gained across global supply chains and new opportunities to engage with consumers around responsible practices.

Sustainability is an objective that refers to the environment and economic and social issues of any culture. Cotton farming systems are diverse and the issues associated with cotton cultivation. More than 100 million family units are directly engaged in cotton production (Fortucci, 2002). When family labour, hired on-farm labour and workers in ancillary services such as transportation, ginning, baling and storage are considered, over 250 million people are involved in the cotton sector (ICAC, 2009). There is a call for a mass-market transformation in which

sustainable cotton is the norm and for a change in global perspectives and the emergence of sustainable strategies to improve the livelihood of 250 million families across the globe involved in producing this valuable crop.

The role of biotechnology in cotton farming is important in producing pest resistant durable hybrids and reducing the amount of insecticides and fertilizers. Global standards have been instituted to cultivate organic crops and voluntary sustainability initiatives assess many sustainability issues in cotton production. The cotton industry reaches out to all involved, from small poverty-stricken farmers to chic fashion stores in different parts of the globe.

Why should brands and retailers get involved?

The production of sustainable cotton has enormous potential to create change. By sourcing sustainable cotton business can help dramatically reduce some of the negative environmental impact of the apparel sector and create positive benefit for millions of farmers and communities. Significant agronomic and social challenges exist across cotton communities.

Mostly in the developing countries cotton communities are subsistence economies with limited worker protection, limited education and limitations on women's rights.

Sustainability makes perfect business sense, and securing a sustainable and transparent supply in the future is vital.

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The Most Common Challenges for Unsustainable Cotton Growing Systems Includes:

Inappropriate and excessive use of pesticides and fertilisers

Low income of smallholder farmers

Adopting to land use pressure of the future (towards food)

Irrigation water quantity and quality issues

Price volatility and uncertain market

Labour crisis

How Sustainable Cotton Production Supports Sustainable Development Goals (SDGs)

Sustainable cotton production can work towards UN SDG goals including poverty eradication, zero hunger, good health and wellbeing, gender equality and decent work.

It offers greater transparency and traceability across the supply chain to connect industry to farmers and support their livelihoods.

Integrating sustainability into the cotton supply chain will reduce the industry's impact on the natural environment, improve the livelihoods of millions who rely on the sector. By reducing the negative impacts in the cotton supply chain, it can also play a significant role in helping the world achieve the United Nation's Sustainable Development Goals (SDGs), with a pledge that **"No one will left behind."**

Sustainably produced cotton can also contribute too many other positive outcomes. These vary according to each standard, but can include:

Environmental

Increasing soil health, erosion control and reducing compaction.

Protecting biodiversity and ecosystem services.

Improving water quality and conservation through more efficient irrigation techniques.

Reducing reliance on harmful pesticides.

Social and economic

Instilling practices that prepare farmers and communities for the impacts of climate change and help them become more able to adapt.

Offering opportunities for women in farming communities to improve gender equality.

Preventing the use of child and forced labour, a key aspect of many Modern Slavery Acts.

Creating safe farm workplaces by reducing risk of exposure to harmful chemicals, and improving safe access to first aid, machinery etc.

Reducing poverty among cotton farmers and their workers through fair wages and better income from higher yields.

Building farmers' resilience to price shocks and improving their ability to avoid debt cycles.

Investing in communities to help them develop long-term resources and resilience.

Farmer training programmes and support for sustainable farming helps the environment and addresses climate action, life on land and water management. Initial findings from 2016/17 aggregated impact assessment of all programmes, resulted in:

- An average yield increase of 10.2%
- A reduction in water usage of 18.6%
- A reduction in chemical pesticide usage of 44.3%
- A reduction in chemical fertiliser usage of 24.1%
- A 30.3% increase in profits
- A reduction in input costs of 6.1%

(Source Cotton Connect)

These results are closely aligned with the SDGs as they support farmers increase profits by saving on inputs such as pesticide and water. A reduction in chemicals helps improve health and wellbeing and introducing farmers to techniques such as intercropping provides additional income and sustenance, ultimately improving the livelihoods of cotton farming communities.

These practical solutions have been proven to be effective, and are increasingly being requested by global brands and retailers who realise that sustainability makes perfect business sense. They also see that securing a sustainable and transparent supply in the future is vital.

Partnerships between governments, the private sector and civil society, working together with a shared goal of sustainability across the global textile industry.

Sustainable Cotton programme is dedicated to the production and promotion of sustainably grown domestic cotton fiber. In the field engaging the innovative growers to produce a High-quality fiber without using the most toxic pesticides and herbicides.

And, in the industry the programme connect growers, manufacturers and consumers to develop a Cleaner Cotton supply chain.

Sustainability standards and certification schemes aim to address the issues associated with unsustainable cotton production. They provide guidance to farmers on sustainable practices and give assurance to buyers that they meet certain requirements. Sourcing cotton produced according to a sustainable standard or certification is a good first step for companies to take to improve the sustainability of the cotton they procure. While each sustainable cotton standard is different, sourcing cotton from one or more sustainable standard can have significant environmental, social and economic benefits.

Prioritizing sustainability themes for cotton farming systems

1. Environmental

a) Land productivity and Soil Health

Land conservation

Rational land use

Improve soil fertility

Reduce chemical fertilizer

Reduce soil erosion

b) Pest and Pesticide Management

Reduce environmental contamination by pesticides

Integrated Pest management and crop production

Reduce human exposure to pesticides

c) Water Management

Reduce water use

Improve crop water management

Improve water quality by keeping it out of contamination

d) Biodiversity

Improve biodiversity

e) Climate Change

Reduce Greenhouse gas (GHG) emissions

Optimizing decomposition and mineralization

Optimizing Energy use

Monitoring of Carbon stock changes

2. Economic

Make cotton cultivation more profitable

Improve Economic Viability,

Poverty Reduction and Food Security

Economic Risk Management

3. Social

Labour Rights and Standards; Free from Child Labor; Promote Decent Working Environment for Farmers; Workers and Communities Freedom of association; Social protection

Worker Health and Safety

Gender equity

Increase Confidence and Trust among Consumers

The Impacts of Sustainable Cotton

- Reducing use of hazardous chemicals on cotton farm or safer handling and more efficient use where chemicals(fertilizer, pesticide etc.) are still used
 - Less excessive use of water for irrigating cotton crop which can benefit other water users and natural habitats, particularly in water stressed regions
 - Reducing poverty of cotton farmers and workers of cotton farms through higher return from cotton crop
- Addressing each of the issues is critical for long term viability and sustainability of the industry.

Benefit to farmers:

Taking care of the environment is important to the cotton industry. Cotton farmers and producers practice sustainability, which means they farm and manufacture cotton in ways that help take care of our planet and its natural resources.

Reduction of inputs: Improve farmers and workers health, improve health of local ecosystem, particularly water ecosystem, reduced cost of inputs and build capacity for sustainable farming technique.

Resilience in changing conditions: Training that enhance resilience, increase fertility of the land in the long term, benefit future generation of farmers

Cotton premiums improve livelihood and communities: many cotton standards creates premium opportunities for farmers, ripple effects of increased farmer income felt in local communities, support gender equality- increased opportunities for the women in farming communities ,prevent the use of child and forced labour

Training opportunities: Educate and skill up smallholder cotton farmers, build capacity for long term sustainable farming for other crops also

Business Benefits

1. Build brand positioning for environmental and social responsibility
2. Minimize reputational risk
3. Demonstrate positive impact
4. Keep pace with competitors
5. Maintain and build investors interest
6. Increase transparency and traceability
7. Create long term resilience and security of supply chain
8. Demonstrate commitment to systemic sustainability

It is essential that the interests of all the participants in the cotton supply chain are considered. The specific information requirements of the different participants in the cotton industry will vary depending on how the information is used and on the value of the information that is collected. This is especially so when it comes to the question of “how the sustainability of cotton farming is assessed”. Among other things, collecting and reporting data requires a clear purpose, as well as clear links between the costs involved in collecting the data and the benefits of doing so.

Understanding Traceability

According to the United Nations Global Compact, traceability means being able to identify and trace the history, distribution, location and application of products, parts and materials.

Along with approaches such as due diligence, if products, parts and materials are traceable for all or part of their journey along the supply chain, it creates opportunities to assess or understand human rights, labour practices and environmental impacts, etc. Traceability also provides a basis for establishing credible sustainability, quality or origin claims and attributing them to end products. It is important to recognize that different stakeholders in a supply chain will have different ideas what traceability means.

The Need for Traceability

To ensure their supply chain is sustainable, brands should want to know where their products come from, who created them, the conditions under which they were created and their impacts on the environment.

Complex supply chains often go hand-in-hand with a lack of traceability, which in turn makes it hard to make sustainability improvements. Full knowledge of the supply chain is essential to demonstrate a link between corporate sustainable sourcing policy and practice, and actual supply chain sustainability improvements.

Improvements in traceability bring several benefits:

Brands and retailers can validate claims about products and practices, and communicate these to customers.

End consumers can trust a product’s origin, which increases their trust and engagement with a brand.

Farmers can secure contracts more easily, and get better access to markets and services like finance and education. Traceable certification can also help them obtain price premiums.

Suppliers can see an increased level of trust and sales, and more secure supply. Traceability also improves supply chain management.

Most companies that source sustainable cotton work with certification schemes that are experienced in fulfilling their sourcing commitments and ensuring traceability. When combined with a due diligence approach, this provides a robust approach to sustainable sourcing.

Cotton is an important crop playing pivotal role in different part of the farming economy. Long term production plan should be devised and implemented region wise. Against this backdrop, couple of years Cotton Development Board just engages with renowned retailer PRIMARK with the help of the global social business enterprise COTTON CONNECT for piloting of Sustainable Cotton production in south western part of Bangladesh. We feel to scale up the programme across the country more spinners have to engagement in domestic sustainable cotton production. Private ginner's and spinner's support for the successful implementation of sustainable cotton production is very much important. Besides private ginner's the public sector engagement to intervene in all activities is also important to provide a parallel entity for helping the farmer in getting minimum prices of their products and also to boost productivity during adverse period, which will help to sustain the cotton scenario. Cotton Development Board act as a facilitator as well as providing technical support to all cotton supply chain stakeholders for the implementation of sustainable cotton production, in a view to helping the sector remains sustainable in future and helps the stakeholders to plan on long term basis in a sustainable way. This sector has bright future to increase domestic production of sustainable cotton as a substitute of highly dependent on raw cotton import. Finally sustainable cotton production can save hard earned foreign currency as well as save the industry from any uncertainty of raw material supply.