

**FORUM
FOR THE
FUTURE**

Building a Climate Resilient Cotton Sector - Identified Risks

Cotton 2040 Roundtable Series: November 2021

In partnership with:



**COTTON
2040**



ACCLIMATISE
building climate-resilience
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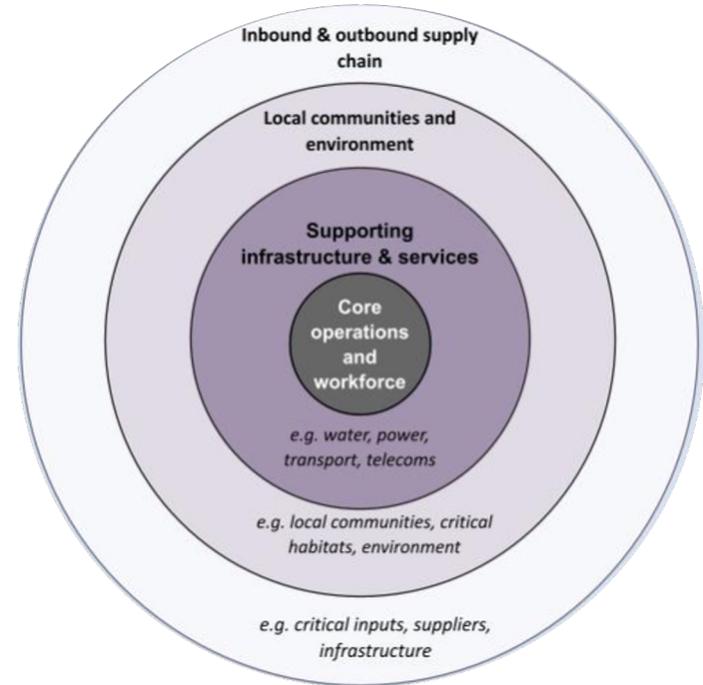
Background

A 2021 study reveals the physical impacts of climate change on the cotton industry globally...

- A team of analysts at the Climate Resilience Hub (formerly Acclimatise) at Willis Towers Watson mapped the impacts of climate change across 12 hazards projected by 2040 across the cotton producing world.
- Drawing on the insights from the [global](#) and [India](#)-focused analyses, as well as a unique interactive [Climate Risk Explorer Tool](#), the Cotton 2040 team hosted a series of roundtables with stakeholders from across the cotton supply chains.
- Representatives from nearly every cotton producing region across the globe attended, as well as from stakeholder groups ranging from farmers, manufacturers, traders to brands and retailers.

Climate risk roundtables

- In the first of three roundtables, participants were presented with the climatic hazards as they applied to their geographies, and asked to volunteer their perspectives on how these hazards will impact different elements of the cotton industry.
- The next page will provide the key, broad takeaways from the roundtables.
- The subsequent section provides a narrative summary of the hazard in focus, the type of impact it could have, and how this will impact different parts of the cotton supply chain.



Participants were asked to broaden their understanding of what the cotton sector entails, encompassing energy, community and infrastructure.

Key takeaways



Most risk is at farm-level

Respondents focused on physical risks at a farm or area of production level. The potential of risks differed region by region, yet each area would face at least one if not many compounding hazards.

But risk spreads through the value chain

Impacts of climate change were not only felt by producers, but all through the value chain, e.g. downstream actors would face higher energy costs, logistical delays and likely significant fluctuations in volume of cotton.

A dearth of data hinders adaptation

Data was lacking in predictive models, in the development of financial or insurance models, and in traceability efforts. An outdated approach to data may amplify the negative consequences of each risk and hazard.



Hazard:

Temperature and heat stress

Type of impact:

Environmental and Financial

Increasing temperature fluctuations, including extreme heat and erratic cooler spells, threaten levels of production along with fibre strength and quality at farm level.

Higher temperatures also bring greater threat of pests, with an equal reduction in the efficacy of chemical control of pests where used. This increased pressure will have implications for partners along the chain, as lower production and quality brings retailers into competition over supply, and drives up cost of materials, and asks the question “will rising costs of production be passed on to consumers, or impact producers?”.

Hazard:
Drought

Type of impact:
Social and Environmental

The consequences of frequent and longer drought, with shorter, more erratic and heavier rainfall, are significant in the potential for widespread crop abandonment and potential migration from the land itself.

In areas as diverse as Nigeria to West Texas, unviable harvests and dwindling water tables turn smallholder and commercial farmers away from cotton.





Hazard:
Wildfire/storms and cyclones
Type of impact:
Social / Economic

As one participant stated: “so-called ‘hundred year events’ are happening several times a decade”. As communities face increased threat of recurring and catastrophic storms, infrastructure, including road use and utilities, will be impacted.

This poses significant implications, including low yields or crop failure, inhibited access to cotton fields, disrupted transport of cotton, and damage to down power lines. One of the many questions this may raise is how insurance providers adjust, and how financial actors can adjust to support producers recapitalize, innovate, or even grow subsequent harvests. Predictive models that could help mitigate these events are based on out-of-date data.

Hazard:
**Temperature, heat stress
and drought**
Type of impact:
Social

An underestimated risk resulting from high temperatures and drought is the breadth of negative consequences on immediate and surrounding communities.

Processing plants, requiring a high degree of energy for air conditioning to keep workers cool, and large volumes of water for processing, strain utility infrastructure. Communities, requiring power and water to survive, will come into conflict with processors, with the potential to cause social conflict.





Hazard:
Water stress, precipitation and flooding
Type of impact:
Social / Economic / Financial*

Flooding and intense rainfalls have manifest consequences for production, communities and upstream partners.

Flooding of roads and farms can cause logistical issues, prohibiting access to fields and, where accessible, create health dangers such as fungal infections, which disproportionately impact women. In worse cases, populations migrate from consistently impacted regions. Salinity of soil is impacted, and intense flooding will wash topsoil away. Should cotton not receive the right amount of water, this can lead to cotton yields and quality being impacted.

*Here, “economic” refers to broader impacts such as inflation, and “financial” speaks to, e.g., access to finance or financial products, which may have to change to accommodate a changing conception of risk, or new types of crop insurance. The two are, however, closely related.

What next?

How can you support a more climate-resilient cotton industry?

- If you are a brand/retailer and interested in learning about how nature-based solutions may provide a roadmap to building resilience in cotton production, whilst offering carbon sequestration and improving biodiversity, the [Cotton 2040 initiative](#) is developing a pilot in ecosystem services for cotton in the US. To find out more, contact Hannah Cunneen (h.cunneen@forumforthefuture.org).
- Cotton 2040, in partnership with Willis Towers Watson (WTW), is offering a series of 6 masterclasses aimed at brands and retailers on climate impacts and adaptation in October 2022. Developed by WTW's content experts and Forum's team, these will cover essential topics such as due diligence, transition and decarbonisation, and commodities and supply chain risk. For more information, contact Neil Walker (n.walker@forumforthefuture.org) or Erin Owain (erin.owain@willistowerswatson.com).
- Textile Exchange, an industry convener on textiles and fabrics, is spearheading the [2025 Sustainable Cotton Challenge](#), encouraging brands to source 100% sustainable cotton by 2025.
- Forum's Growing Our Future ([US](#) / [UK](#)) programmes are promoting regenerative agriculture at scale alongside a diverse set of stakeholders. Find out more by contacting Mary McCarthy (m.mccarthy@forumforthefuture.org).

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THANK YOU

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