Investments and Advances in the Cotton Value Chain

Exploring New Technologies and Markets for the Cotton Value Chain

81st Plenary Meeting

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Gherzi Textil Organisation
www.gherzi.com

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01 Mega trends and opportunities

02 New technologies and markets

03 About Gherzi
Cotton among the most dynamic global value chains, reinventing itself perpetually: 5 thematic areas

1. The growth of textile industry will be characterized by restructuring and consolidation

2. ‘Reglobalisation’ of sourcing

3. Sustainability - a policy imperative

4. Digital technologies are impacting the entire value chain

5. …resulting into a new ‘textile eco-system’ framework
**Textile consumption**: Continues to grow at 2% CAGR in tandem with demographics and GDP

**World population (Bn)**

- 1960: 3
- 1980: 4.5
- 1990: 5.3
- 2000: 6.1
- 2010: 7
- 2019: 7.7
- 2025: 8.2
- 2030: 8.5

**Per capita textile consumption (kgs)**

- 1960: 5
- 1980: 8.1
- 1990: 9.1
- 2000: 10.0
- 2010: 12.1
- 2019: 14.3
- 2025: 15.2
- 2030: 16.4

**World textile fibre consumption (Mn tons)**

- 1960: 15.2
- 1980: 36.4
- 1990: 48.4
- 2000: 61.1
- 2010: 84.6
- 2019: 110
- 2025: 125
- 2030: 139

Source: ICAC, Gherzi forecast, UN Population
Reglobalisation of Sourcing: Accelerating shifts in global mill cotton consumption

Evolution of mill consumption of cotton (post-MFA) 1995/96-2023/24 vol in Mn tons

<table>
<thead>
<tr>
<th>Year</th>
<th>USA</th>
<th>BRA</th>
<th>TUR</th>
<th>Pak</th>
<th>IND</th>
<th>Pre-MFA</th>
<th>Post-MFA</th>
<th>China Peak</th>
<th>New sourcing destinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995/96</td>
<td>1.5</td>
<td>1.0</td>
<td>1.5</td>
<td>2.3</td>
<td>2.6</td>
<td>18.0</td>
<td>25.0</td>
<td>25.0</td>
<td>23.0*</td>
</tr>
<tr>
<td>2005/06</td>
<td>0.8</td>
<td>0.5</td>
<td>0.9</td>
<td>2.5</td>
<td>3.6</td>
<td>25.0</td>
<td>36.0</td>
<td>26.0</td>
<td>10.2</td>
</tr>
<tr>
<td>2009/10</td>
<td>0.9</td>
<td>0.8</td>
<td>1.3</td>
<td>2.3</td>
<td>4.3</td>
<td>25.0</td>
<td>10.2</td>
<td>10.2</td>
<td>5.0</td>
</tr>
<tr>
<td>2023/24</td>
<td>1.0</td>
<td>1.5</td>
<td>1.7</td>
<td>2.0</td>
<td>5.0</td>
<td>23.0*</td>
<td>26.0</td>
<td>26.0</td>
<td>7.0</td>
</tr>
</tbody>
</table>

*NB: USDA (25 mn t)
Digital technologies: impacting the entire textile value chain
Digital technologies: Future factory - an integrated system ("digital twin")

Source: Joachim Hensch
……resulting into a new ‘textile eco-system’ framework

Production
- Produce clean, local, with respect and efficiently

Retail
- Hack the take-away-waste model

Design
- Design for eternity
- Design for rebirth
- Smart textiles
- Mass customization on the rise

Consumption
- Go slow, connected, and take good care

Resources
- Materials matter

End of life
- Consider every ending as a new beginning

Systems thinking
- Be transparent and work together

Regulation
- Legislation by EU, US, UK
- EPR
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Technology: Air-jet spinning has emerged as the fastest growing spinning technology with high acceptance in downstream (1/5)

Yarn characteristics of cotton air-jet yarns
- Unique low hairiness
- Reduced tenacity compared to ring yarn
- High volume*
- High abrasion resistance

Characteristics in downstream and fabric
- Lowest generation of dust and fiber fly
- Less sizing needed
- High fabric evenness
- High pilling resistance
- Harsh and crispy touch
- Low dyestuff for comparable color intensity

High acceptance in downstream
- Softer fabric touch
- Keep the high pilling resistance

*1 Air Jet position = 20 ring spindles

Air-Jet Spinning machine J 70

Source: Rieter
Technology: Blockchain cotton value chain concept: including the customer (2/5)
trusted and validated information showing the value of sustainable practices
**Technology:** Traceability now a business imperative (3/5)

- DNA is applied on the organic cotton before the spinning process
- DNA is verified after yarn production
- DNA is verified in produced fabric
- DNA is verified in final product

Source: Haelixa
**Technology:** Textile-to-textile chemical recycling gaining momentum (4/5)

Conventional value chain in the fashion industry

Renewcell makes the textile network circular

Source: Renewcell
<table>
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<th>Technology: Leading cotton-textile corporates recognize water governance as a KRA (5/5)</th>
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<tr>
<td><strong>Technologies and markets</strong></td>
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<tr>
<td><strong>LUTHAI TEXTILE</strong></td>
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<tr>
<td>• Waterless and low salt yarn dyeing technology</td>
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<td>• Double membrane process column ultrafiltration (CCMF) and RO for processing and recycling of waste water</td>
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<td><strong>Vardhman</strong></td>
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<td>• Collaborates with 'Global Water Partnership' for efficient water management</td>
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<td>• 38% of treated water is recycled</td>
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<td>• Installed 9 STPs and 4 ETPs (incl 3 ZLD plants) and 52 rain water harvesting systems</td>
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<td><strong>Arvind</strong></td>
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<td>• Joined hands with 'Gap Inc.' to eliminate use of freshwater in making denim.</td>
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<td>• 36 percent overall reduction in freshwater use was reported in 2018-19 compared to 2014-15.</td>
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<td>• New low-liquor waterflow dyeing mc's</td>
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<td>• Cut water consumption in dyeing process by 40-50%</td>
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<td>• 27% of water consumption is met from recycled water</td>
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<td><strong>Welspun Living</strong></td>
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<td>• Flagship facility is fresh water positive: 30 MLD sewage treatment plant enables use of treated sewage</td>
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<td>• Target to become fresh water positive from existing 10.2 kl/MT (2024) to 0 kl/MT (2030)</td>
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Source: Coy ESG reports
**Markets:** Emerging markets are investing in upgradation across the textile production chain (1/2)

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- **Ring spindles (Mn)**
  - CN: 37.7
  - IN: 16.7
  - BD: 5.2
  - VN: 4.9
  - TR: 4.1
  - PK: 4.2
  - ID: 3
  - UZ: 3.1
  - RoW: 4.1

- **Shuttle-less weaving mc’s (’000)**
  - CN: 661
  - IN: 171
  - BD: 50
  - VN: 19
  - TR: 32
  - PK: 25
  - ID: 24
  - UZ: 6
  - RoW: 12

- **Circular knitting mc’s (’000)**
  - CN: 154
  - IN: 31
  - BD: 14
  - VN: 15
  - TR: 16
  - PK: 6
  - ID: 8
  - UZ: 4
  - RoW: 49

- **Finishing lines (Continuous) No’s**
  - CN: 715
  - IN: 1368
  - BD: 247319
  - VN: 10841
  - TR: 11347
  - PK: 35
  - ID: 2
  - UZ: 34
  - RoW: 28

*Source: ITMF*
Markets: Dramatic shifts in global sourcing of textiles & apparel, especially cotton products (2/2)

US Imports of Textiles & Apparel – Cotton Products (2010-22) – Evolution of sourcing market share (%)

Source: OTEXA
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03 About Gherzi
### About Gherzi

**Gherzi:** Integrated consulting since 1929

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<td>[Boselli (I)]</td>
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<td>[Moncler (RO)]</td>
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<td>[Vardhman (IND)]</td>
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<td>[Rateks (TR)]</td>
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<td>[ETF (EGY)]</td>
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<td>[Taypa (TR)]</td>
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Gherzi: Active across the entire value chain

1. Fiber
   - Reliance
   - UNIFI
   - شابک
   - بفاطمة
   - austrocel hallein
   - Lenzing
   - Lenzing
   - Sateri
   - Cotton Incorporated
   - ADITYA BIRLA GROUP
   - INDOORAMA

2. OEM
   - RIER
   - Muratec
   - øerlikon barmag
   - Trützschler
   - Picanol
   - Karl Mayer
   - Cotton Incorporated
   - DILO GROUP
   - Benninger

3. Textile
   - Tencate
   - Welspun
   - Low & Bonar
   - Marzotto Group
   - Faurecia
   - Denuzi
   - Coki
   - COATS
   - Sanytex
   - Rimar Group

4. RMG
   - Nassa Group
   - Viyellatex
   - Denzi
   - Rateks
   - Beximco
   - Vardhaman
   - Shela
   - LMW

5. Brands/ Retail
   - TOM TAILOR
   - DSquared
   - IKEA
   - Fila
   - BOSS
   - Hugo Boss
   - Li & Fung
   - Ermenegildo Zegna
   - Helly Hansen
About Gherzi

Gherzi: International presence

- 137 fully employed professionals
- Partnership on a worldwide level
- 7 own offices
- More than 8'000 completed projects
- Activities in more than 80 countries
Thank you
Merci

Consultants to the industry since 1929

www.gherzi.com