



ITMF Annual Conference 2018

Nairobi, Kenya - Sep. 7 - 9, 2018

Supply Chains & Business Models in Times of Rapid Change

available Presentations

September 7, 2018

Friday (September 7)

Formal Opening Session

Jas Bedi, EBS, MBS, President, ITMF and ACTIF

The Hon. Mukhisa Kituyi, Secretary General, UNCTAD, Switzerland

The Hon. Peter G. Munya, MGH, Cabinet Secretary Ministry of Industry, Trade & Cooperatives, Kenya

Fibre Session: Cotton

[CmiA-Cotton made FOR Africa?!](#)

Christian Barthel, Cotton made in Africa, Germany

[Keeping Cotton Competitive: Industry Actions](#)

Terry Townsend, Cotton Analytics, USA

[Supply-Demand Balance on Cotton and Chemical Fibres](#)

Xiaoping Duan, China Chemical Fibre Association (CCFA)

Fiber Session: Man-made Fibres

[Trends in Global Fibre Production & Consumption](#)

Robin MacDonald, Wood Mackenzie Chemicals, Germany

[Sustainable Development of Viscose - Goal, Roadmap and Global Collaboration](#)

Feng Xin, Sateri, China



INTERNATIONAL TEXTILE MANUFACTURERS FEDERATION
FEDERATION INTERNATIONALE DES INDUSTRIES TEXTILES
INTERNATIONALE VEREINIGUNG DER TEXTILINDUSTRIE

Nairobi, Friday, the 7th of September 2018

ITMF Annual Conference 2018

“Supply Chains & Business Models in Times of Rapid Change”

Formal Opening Session

Welcome Address by

Mr. Jas Bedi

President, ITMF & ACTIF, Kenya

Hon. Cabinet Secretaries

Principal Secretaries

Distinguished Guests

Ladies and Gentlemen:

Good Morning to you all:

For 2 reasons, It gives me great pleasure to welcome you all here in Nairobi to the Opening Session of the ITMF Annual Conference 2018.

Firstly, in the 114-year-long history of International Textile Manufacturers Federation it is the first time that the ITMF Annual Conference is held in this part of Africa, in the so-called heart of Africa here in Nairobi, Kenya.

Secondly, I am here at this Opening Session also in the capacity as the Chairman of ACTIF, the African Cotton & Textile Industries Federation besides being the President of ITMF.



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I must admit that I thoroughly enjoyed serving you all over the past 2 years and will cherish all these moments as I step down as President of ITMF at the end of this conference.

ACTIF is very proud to host the ITMF annual conference here in Nairobi in conjunction with the annual Origin Africa exposition that starts at the back of this conference.. Visitors of Origin Africa can attend the ITMF Annual Conference, follow the discussions about the evolution of the global textile industry and meet industry colleagues from around the world. ITMF conference delegates, on the other hand, have the opportunity to see the variety of African textile and apparel producers that exist. One must bear in mind that ACTIF was only established in the year 2005, more than 100 years later than the ITMF.

The vision of ACTIF is that of an integrated African cotton, textile and apparel industry that effectively competes on the world stage. Hence it is crucial the African textile and apparel industry becomes part of the global textile and apparel supply chain.

This brings me to the general theme of this year's conference: "*Supply Chains and Business Models in Times of Rapid Change*".

The textile and apparel industry is one of the first industry that has developed a global industrial supply chain. In the beginning, especially Indian and Egyptian cotton was shipped to Europe which was spun into yarns and woven into fabrics for apparel and home textiles for export to consumers around the world. Later, cotton was also produced in the Americas and exported to Europe where it was processed into finished products and shipped around the world. The old ITMF statistics show that until the 1930s the UK was the country with the largest installed spinning capacities on the planet. We all know that this has changed dramatically. Today, there are almost no spindles left in the UK, whereas China is now home of around 100 million spindles that represents almost 45% of global ring- spinning capacities.

The ITMF statistics confirm that the spinning and weaving industry have shifted over time but also at what speed. The ITMF shipment statistics, which was introduced in 1970s, provides an even better and more detailed view about investments in new textile machinery. We will be presenting the latest data for 2017 later during the conference. What I can already tell is that, in the past 15 years, as a region, Asia has been, and still is, by far the largest investor in new textile machinery. In all other regions of the world, investments are taking place as well but from a relative lower base and with no significant changes. As a continent Africa is hardly visible on the statistical map at world level. This might however change in the close future! Indeed recently have observed a significantly growing interest in investing in Africa's textile and apparel industry.



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This increased attention is based on two large trends:

First, the conditions to invest in Africa have improved and will improve further, both in economic and political terms. Production costs in Africa are becoming more competitive. Investments in infrastructure is picking up. Economic integration between countries has deepened and continues to do so. In most countries, political stability is much higher than a few years ago. Furthermore, the trends towards fast fashion and mass customization require companies to shorten the lead time and to be closer to their end-consumer, Basically the “need for speed”.

This development was made possible and is reinforced by modern technologies especially with the internet. The advent of the World Wide Web in the early 90s and the advent of smart phones in the late 90s – especially the introduction of the iPhone in 2007 – started a technological revolution that had an enormous impact on the way consumers communicate and behave. Who would have thought 20 years ago that clothing and home textiles could and would be bought on a mobile phone? Or who would have thought that cotton farmers in Uganda would know real time cotton prices?

Second, Africa’s population will grow from around 1.2 billion last year to approx. 2.5 billion people in 2050. This will exceed both Europe and the Americas by over 1 billion people. In other words, Africa will also become an ever more interesting consumer market for companies around the world as we develop our e-commerce infrastructure and move towards e-tailing as opposed to retailing.

The global textile and apparel supply chains is adapting constantly to the trends outlined above. In the past 20 years the direction of trade was mainly East to West – textiles and apparel were produced in low wage countries and exported to the EU, the US and Japan. In the future this pattern will change to a certain extent. The rising demand of regions will be met by local supply. Why? By 2020 the Chinese retail market alone will be larger than those of the US and EU combined.

FYI, Currently the per capita consumption of all fibres is as follows:

- USA – 39 kgs per capita consumption
- EU – 25 kgs per capita consumption
- China – 15 kgs per capita consumption
- India – 6 kgs per capita consumption
- Africa – 2.5 kgs per capita consumption

This consumption pattern will drastically change by 2025 with rising income levels in Asia particularly India and China as follows:

- China 25 kgs per capita consumption



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- India 15 kgs per capita consumption

This new consumption pattern in India and China will re-organise supply chains which will operate in a local area network. Hence China will be supplied by China itself and its neighbours i.e. Vietnam, Laos, Cambodia. Similarly India will be supplied by India itself and by its neighbours i.e. Nepal, Bangladesh and Myanmar.

This LAN (Local area network) brings immense opportunity to Africa to supply the traditional markets of Europe, the USA and not forgetting the entire continent of Africa under the recently signed AfCFTA.

To create a relevant consumer market in Africa, it is necessary to create jobs and income. The technological revolution I have referred to plays an important role in Africa's economic catch up development. Very often it is argued that the availability of new digital technologies will enable Africa to close the income gap with the West faster than this would have been possible in the past. This so-called leapfrogging is already happening in some important sectors and is having an enormous impact. Here in Kenya, the introduction of mobile technologies literally revolutionised the lives of the Kenyan citizen, including the 60 percent of them living in rural areas.

In 2007, Safaricom, a mobile service provider, launched Mpesa, a mobile money transfer and payment service. Suddenly millions of people were able to transfer money and to pay for goods and services in an easy and convenient way. Today, 50% of mobile money users in the world are Africans.

While modern technologies have helped improving the business environment in Africa significantly, Prof. Calestous Juma from Harvard's Kennedy School warned of "*a faulty narrative that assumes Africa can leap into the service economy without first building a manufacturing base.*" Here, the textile and apparel industry can play a key role. The potential to create jobs in this industry is enormous and should be tapped. If the continent does not manage to create jobs and create prosperity, it will not only destabilise the continent but also the neighbouring regions. Uncontrolled streams of economic refugees are already threatening the political stability of Europe. Hence Africa needs to create jobs to ensure social peace prevails. We can either nurture our youth as the world's largest productive society which is 70% of our population under the age 30 or risk nurturing this young population as destructive society. Globally Industrialization started with this basic textile industry and Africa need NOT re-invent the wheel as it develops its industrial base.

Africa currently grows 6% of the world's cotton, of which 70% is exported as raw material abroad. This has a potential to generate a revenue in finished product of



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USD\$18bn as opposed to current export value of USD\$1.2bn and create 9 million jobs on the continent.

Africa's land mass which is in excess of 30 million sq.kms can house USA, EU, India, China, Japan and the opportunity to expand its cotton production is immense considering 55% of the land is un-cultivated arable land. Hence a real opportunity to become the food basket of the world besides clothing the world.

Kenya has already embarked on this opportunity with our President focused on the big 4 agenda that has ear-marked manufacturing as 1 pillar in creating the much need jobs for social peace and stability.

With reference to the general theme of the conference "*Supply Chains and Business Models in Times of Rapid Change*", we have to ask ourselves how we, as companies, have to adapt to changing demands from consumers, retailers and brands. This means of course, that we always have to question existing business models and, if necessary, adapt the way we operate.

Not too long ago, social and/or environmental issues did not play a major role in the development of a company's business model. In the past 10 years, this has changed dramatically, especially after the disastrous collapse of the Rana Plaza building in 2013 where over a 1000 people died in a fire in Bangladesh. This became a wake up call to consumers and non-governmental organisations who today pay a lot of attention to social issues. There are so many social audits nowadays there is an "audit fatigue" felt among manufacturers, retailers and brands alike. This is the reason why ITMF became a signatory of the so-called "Social Labor Convergence Project" – the SLCP. During a General Session on Sunday we will have the opportunity to learn more about this important project which has as main objective avoiding numerous duplicate audits.

The African continent is currently in a very interesting position. As you all know, in strategic leadership being a follower can be a successful plan, especially in a case where the second has the ability to learn from the errors of the number one. This learning effect allows the second to cut on discovery costs and be overall more efficient in implementing his business model.

Africa, as a continent, can learn a lot from the experiences of its dear American, European, and Asian partners. We know, for example, that the path to a well-functioning market economy is not paved by individualistic behaviours and autarkic kingdoms. To the opposite, we recognise that the world economy is a great network of people who have an interest in working together. These people might develop a buyer-seller relationship, launch a joint project in research and development, or team-



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up to be better able to face future challenges. In today's economy, interaction can take many form.

The key feature is that exchanges are mutually beneficial. The nature of the world "market" should remind us that trade is the realisation of such exchanges. Trade is dependent on interacting with others. At world level, trade is a highly decentralised network of actions in which actors relate to one another through complex linkages. Their benefit of interacting is more than just financial because they learn from one another with each exchange. Information gains always help us increase the probability that our decisions lead to effective results. With a certain degree of knowledge, we are more likely to be creative and find a way to generate value-added for our businesses, employees, partners, and suppliers.

The current world-trading environment is currently challenged with forces of protectionism creeping into this liberal globalised world. As such we are witnessing a new "World Trading Order" which is challenging the incumbent the "World Trade Organisation" with BREXIT, TRUMPISM at the forefront with tariff protection, dumping duties, reciprocity, retaliation measures etc...

An essential question we must ask ourselves as entrepreneurs, government officials, members of a non-profit organisation is: which core values do I stand for? What behaviour should I adopt to make my organisation flourish in the modern network of international relations? How do I structure my business model to be a long-term influencer of the textile supply chain in times of rapid changes as being witnessed globally?

Distinguished guests, Ladies and Gentlemen, Dear friends,

I am delighted to see you all today. You making the effort to participate to the ITMF Annual Conference and Origin Africa because you know that information, networking and contacts are key to understanding the forces that are reshaping our industry. In fact, you are the architects of the Textile and Apparel Industry of tomorrow. The transformation that is taking place will soon reflect the decisions you are making today. I trust you will have good networking opportunities in the next few days and gain interesting insights on future trends to support you in succeeding in your undertakings. Indeed, I am convinced that participating in the ITMF Annual Conference can only lead to an increased awareness of the challenges we need to tackle today to ensure the long-lasting success of our organizations and I would like to thank you for nurturing this platform for exchange.

Distinguished guests, ladies and gentlemen:

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As I close, I trust you will all have some time to visit Kenya and see the many tourist sites we have and experience Magical Kenya the true Kenyan hospitality.

I must say this conference could not have been possible without the support accorded by the GOK to the entire teams of ACTIF and ITMF.

Please let me thank the Government of Kenya.

Also, many thanks to the Ministry of Industry, Trade and Co-operatives, Hon Peter Munya and his team lead by PS Betty Maina for their very appreciated support,

And Mr. Edet Akpan, Ps Ministry of Industry, Trade and Investment from Nigeria.

Our main supporters the World Bank Group and Trade Mark East Africa.

Furthermore, I would like to thank our gold sponsors: Rieter and Saurer;

Our silver sponsors: Oerlikon and Trützschler;

Our bronze sponsors: the collaboration for sustainable development of viscose and Dornier;

Not forgetting our supporters G.I.Z., and 88Spares and UK aid.

In addition, the list of people who made this conference happen also entails the members of ACTIF and the ACTIF secretariat under the leadership of Belinda Edmonds, who did a wonderful job in preparing both events.

Finally, the work of the ITMF secretariat is of equal importance. Thank to Mr. Schindler and his colleagues through which the operational role of the ITMF is ensured.

I would now like to invite to the podium Hon. Mukhisa Kituyi, Secretary General of UNCTAD, a dear friend and a fellow Kenyan and wish you all an informative and inspiring conference.

Welcome to Kenya or should I say it in Swahili Karibu Sana.

COTTON MADE IN AFRICA

Cotton made FOR
Africa?!

Christian Barthel



AGENDA



I. Introduction CmiA

- I. Social business approach
- II. CmiA cotton availability
- III. CmiA in the supply chain

II. History of African cotton

III. Export benchmarks

- I. African export
- II. Global export

IV. Africa's outlook in the textile production

- I. Analysis of Africa's competitive position
- II. CmiA Outlook



CmiA: An unique social business approach

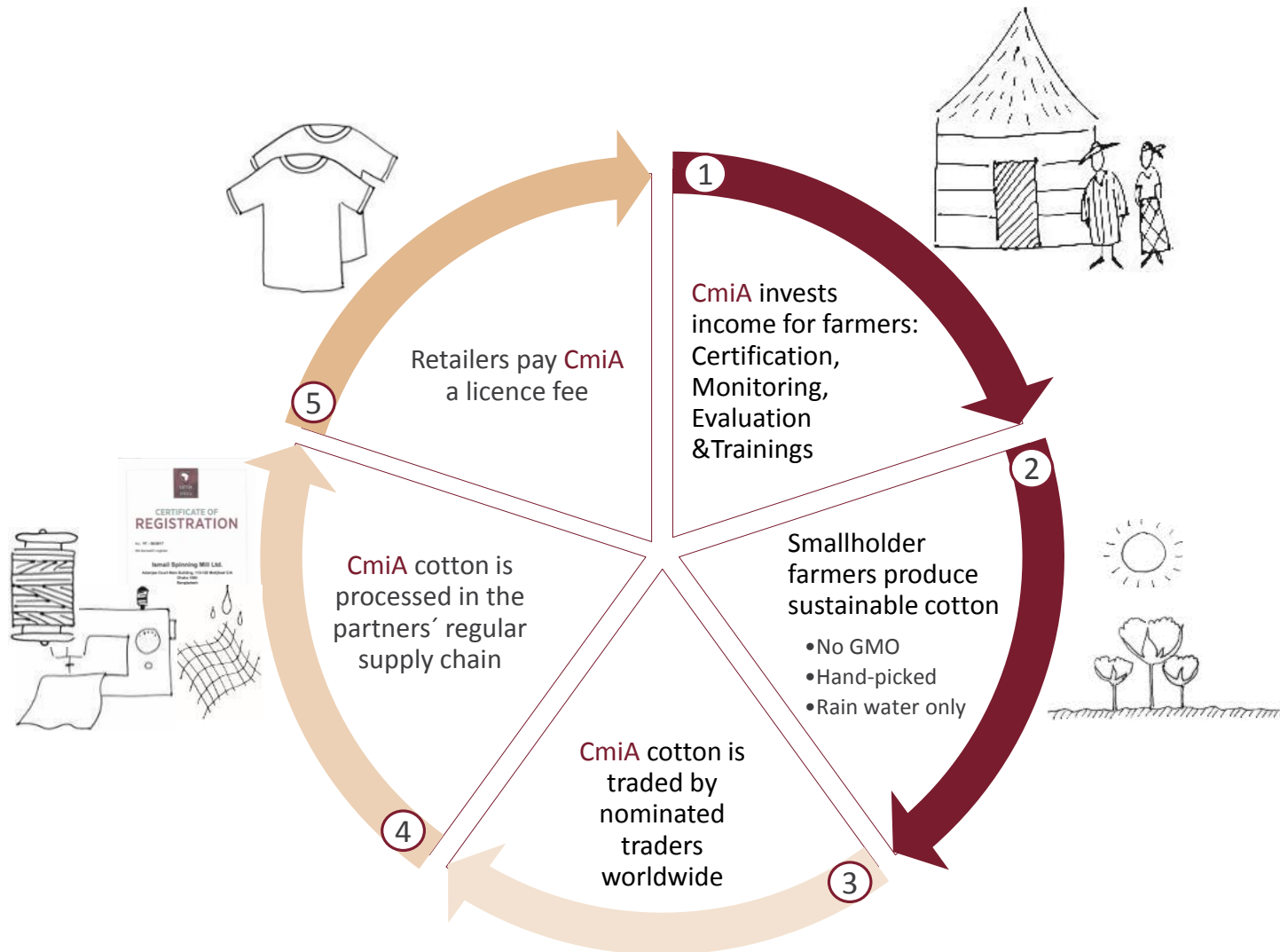


Introduction CmiA

History of African cotton

Export benchmark

Outlook



CmiA cotton availability during the entire year



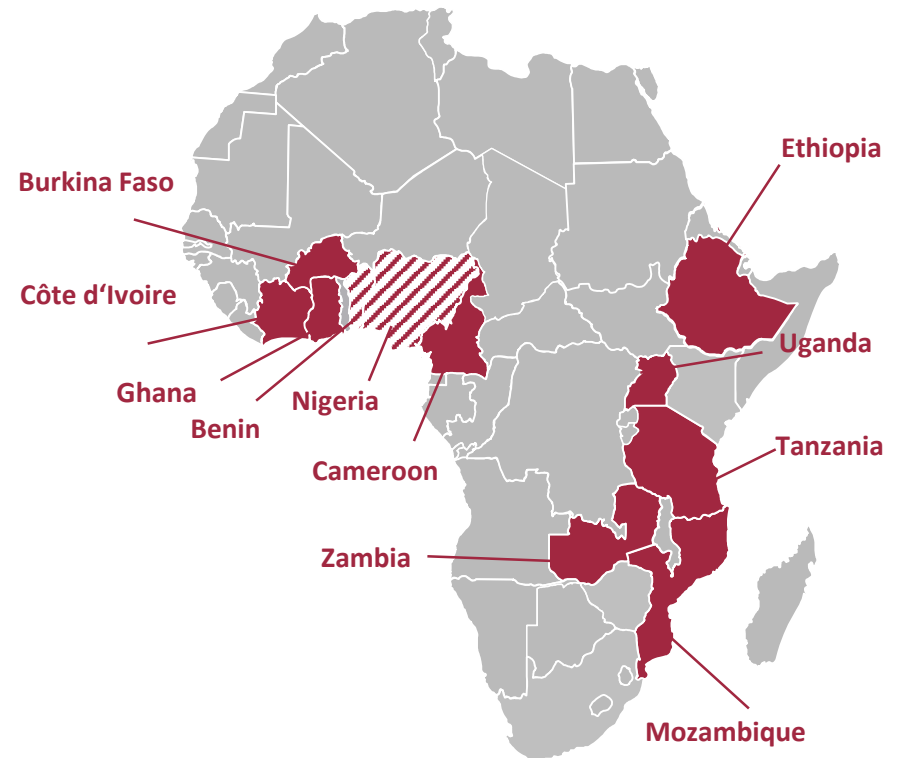
Introduction CmiA

History of African cotton

Export benchmark

Outlook

- **#1** for sustainably produced cotton from Africa
- **496,000 MT lint cotton** available in 2017
- **9 countries** (+ 2 candidates)
- **18 cotton companies** (+ 6 candidates)
- Approx. 40% of the total production of Sub-Saharan African smallholder farmers
- **1,03 M farmers**



■ Countries CmiA verified
▨ Candidate CmiA verification



CmiA cotton availability within the entire supply chain



Introduction CmiA

History of African cotton

Export benchmark

Outlook

87 CmiA partner spinning mills in 19 countries

| Country/ African Import | Import from Africa in tons | Number of CmiA Spinning Mills |
|----------------------------|----------------------------|-------------------------------|
| Bangladesh 23% | 350,000 | 23 |
| India 30% | 135,000 | 12 |
| Turkey 11% | 105,000 | 12 |
| Pakistan 6% | 5,000 | 11 |
| China 8% | 84,000 | 11 |
| Vietnam 14% | 175,000 | 2 |
| Thailand 12% | 31,000 | 1 |



Two options to implement CmiA cotton into the supply chain



Introduction CmiA

History of African cotton

Export benchmark

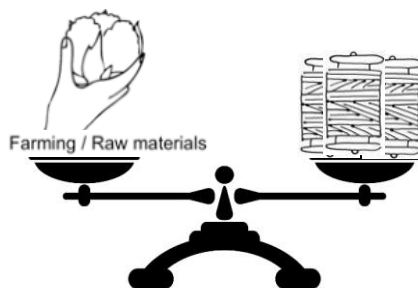
Outlook



MASS BALANCE

on Spinning Mill level

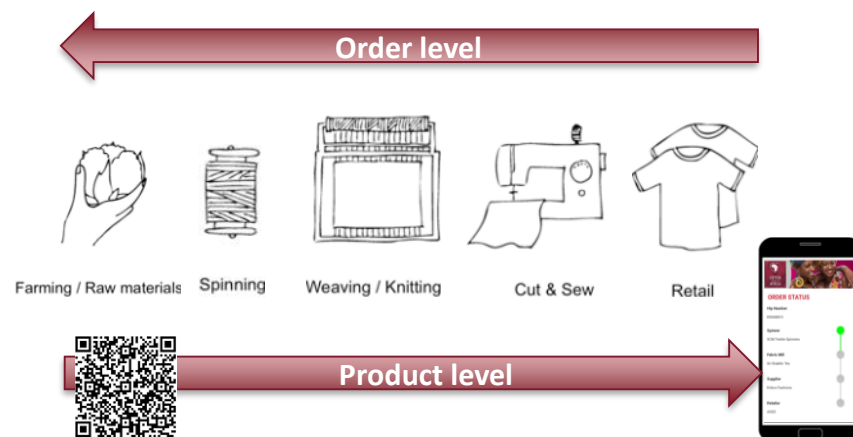
1. Purchase of CmiA cotton from nominated cotton traders
2. Registration with CmiA
3. Assurance of CmiA cotton purchases and yarn sales **BALANCE**
4. Verification and controlling by CmiA through **regular reporting** (several supply chain partners)



HARD IDENTITY PRESERVED SYSTEM (HIP)

(HIP)

1. Confirmation of the HIP Order by each supply chain party
2. Processing of CmiA cotton to **100% CmiA yarn, fabric and product**
3. Traceability of HIP Order through the entire supply chain



History of African cotton and textile production



Introduction CmiA

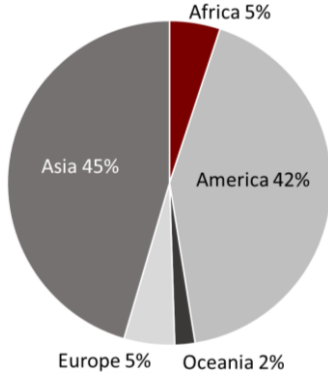
History of African cotton

Export benchmark

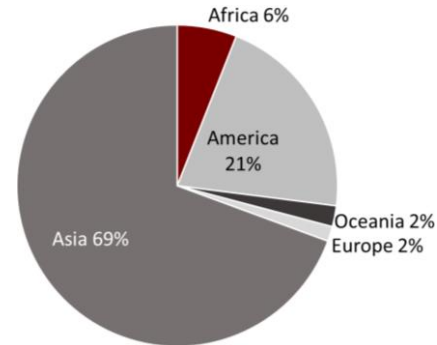
Outlook

Development of cotton production

Production share of seed cotton by region in 1991



Production share of seed cotton by region in 2014



Origin of cotton species:
Gossypium arboreum & Gossypium herbaceum

ACTIF
African Cotton and Textile Industries Federation
Foundation

CmiA
Cotton made in Africa
Foundation

Ancient history

1996

2000

2004

2005

Today

Future

7 major African export countries:
USD **1,896 M**

AGOA
African Growth and Opportunity Act
Foundation
Valid till 2025

EBA
Everything but Arms
Foundation
No expiry date

7 major African export countries: USD **2,979 M**

- Field to Fashion
- Shift of supply chains to Africa
- Requirement to change terms of trade



AGOA eligibility status 2016
■ AGOA beneficiary
■ Not AGOA eligible or currently suspended



Development of textile production

Sources: <http://ipbo.vib-ugent.be/publications/fact-series/cotton-in-africa>
http://hubrural.org/IMG/pdf/wb_cotton_sector_strategies_in_wca.pdf
<https://agoa.info/about-agoa/apparel-rules-of-origin.html>
<http://www.fao.org/docrep/006/y5143e/y5143e1e.htm>

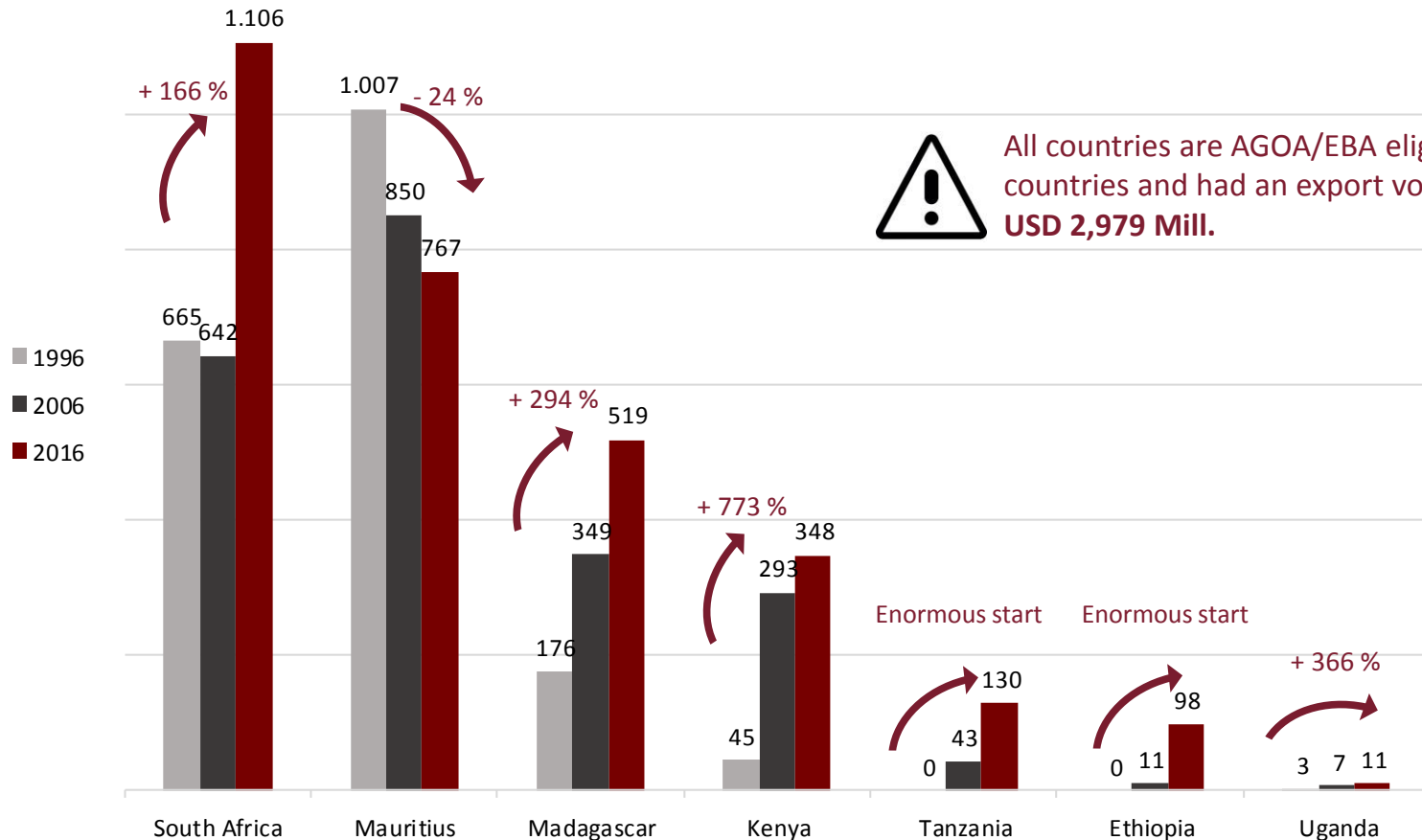


Vacant potential for demand in Africa



Introduction CmiA
 History of African cotton
Export benchmark
 Outlook

Export figures for Textiles and Clothing in major SSA markets in Million USD (last 20 yrs.)



All countries are AGOA/EBA eligible countries and had an export volume of USD 2,979 Mill.

Source: World Trade Organization
https://wits.worldbank.org/CountryProfile/en/Country/ZAF/Year/1996/TradeFlow/Export/Partner/all/Product/50-63_TextCloth



Global potential for shifting demand



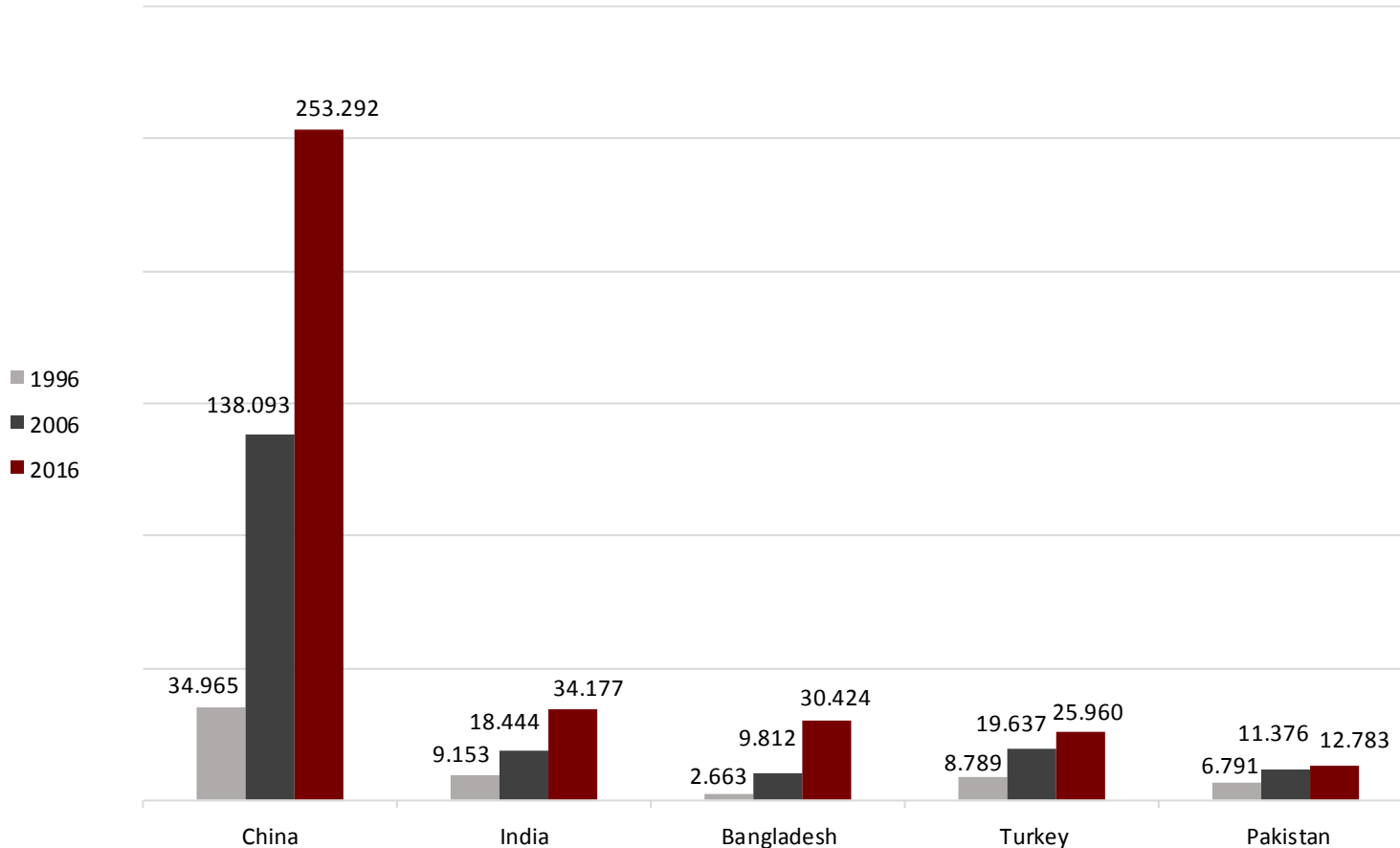
Introduction CmiA

History of African cotton

Export benchmark

Outlook

Export figures for Textiles and Clothing in major global markets in Million USD (last 20 yrs.)



Source: World Trade Organization





Introduction CmiA

History of African cotton

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Outlook

Strengths

Vast opportunity in the availability of resources

- Cotton production of 1,500 MT (p.a.)
- High potential of young workforce (avg age 20 yrs.)

Chances to establish “Field to fashion”-concepts

- Establishment of vertical set-ups
- Reduction of costs in the supply chain
- Improvement of marketing stories

Export benefits through AGOA/ EBA

Opening up of African markets for international investments

- Indian, Chinese, Turkish investors establishing set-ups
 - Improvement of infrastructure
 - Transfer of Know-how
 - Increase of employment rate
 - Increase of purchase power
- European & US retailers introduce sourcing projects

Challenges

Improvement of technical infrastructure

- Technical set-up to process the raw cotton (baseline for holistic development)
- Technical set-up to process yarn and fabric

Improvement of market conditions

- Development of textile market competition
- Development of textile-related industries (like packaging, trimmings)
- Further development of transportation infrastructure

Improvement of knowledge and skills

- Training of workforce about processes in the textile supply chain
- Establishment vocational training options

Source: <https://www.linkedin.com/pulse/reasons-why-time-invest-africa-now-okechukwu-okugo-1>





Africa can do from Field to Fashion!

...and Cotton made in Africa can be part of the solution

| CmiA certified African production facilities | Country | Products |
|--|-----------|-------------------------------------|
| Compagnie Beninoise Des Textiles | Benin | Yarns Fabrics |
| Ayka Addis Textile & Investment Group PLC | Ethiopia | Yarns Ready Garments |
| Kanoria Africa Textile PLC | Ethiopia | Yarns Fabrics |
| MNS Manufacturing PLC | Ethiopia | Vertical producer for home textiles |
| Volta Star Textiles Ltd. | Ghana | Yarns Fabrics |
| Kiboko Leisure Wear Ltd. | Kenia | CMT |
| Formosa Textile Co., Pty. Ltd. | Lesotho | Yarns Fabrics |
| Denim de l'Île Ltd. (DDI) | Mauritius | Vertical producer for denim |
| Tianli Spinning Co., Ltd. | Mauritius | Yarns |
| Charaftex SARL | Morocco | Vertical producer |
| Fine Spinners Uganda Ltd. | Uganda | Vertical producer |

...and many more to come!





**Thank you very much
for your attention!**

Any questions?

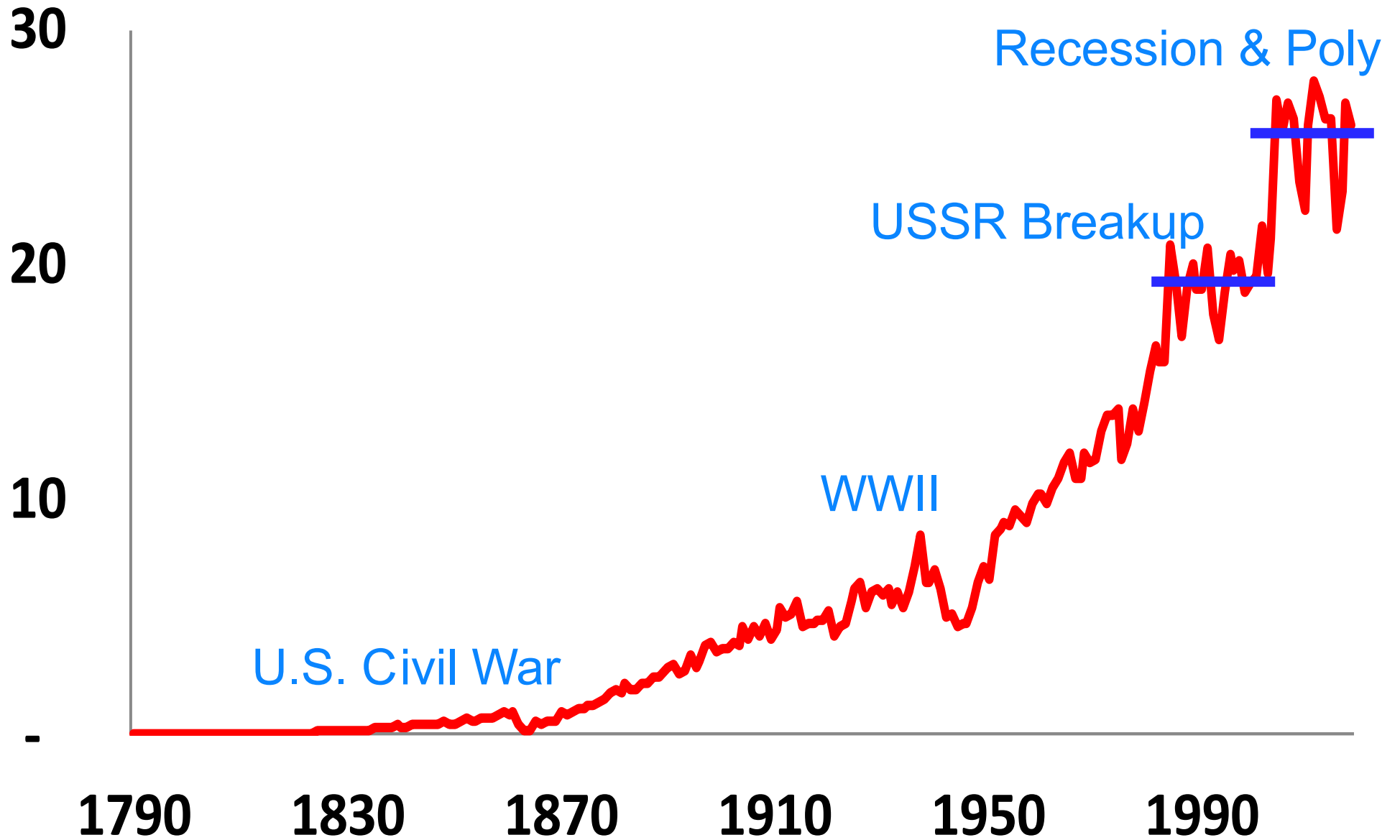
KEEPING COTTON COMPETITIVE: Industry Actions

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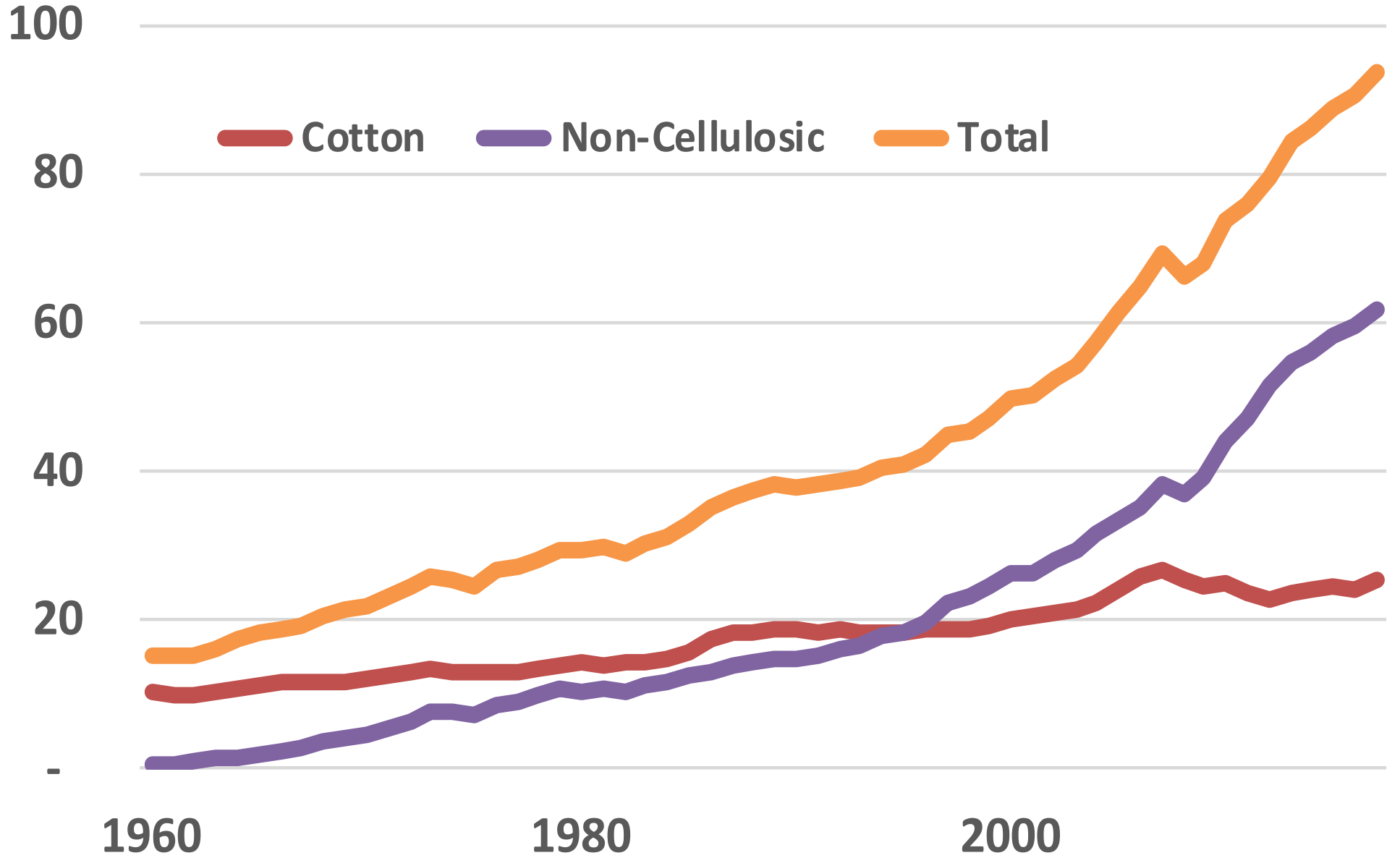
Terry Townsend
Cotton Analytics
(ICAC Data, photos borrowed
from Greg Holt and Kater Hake)



World Cotton Production, Million Tons



World Fibre Use, Mil. Tons

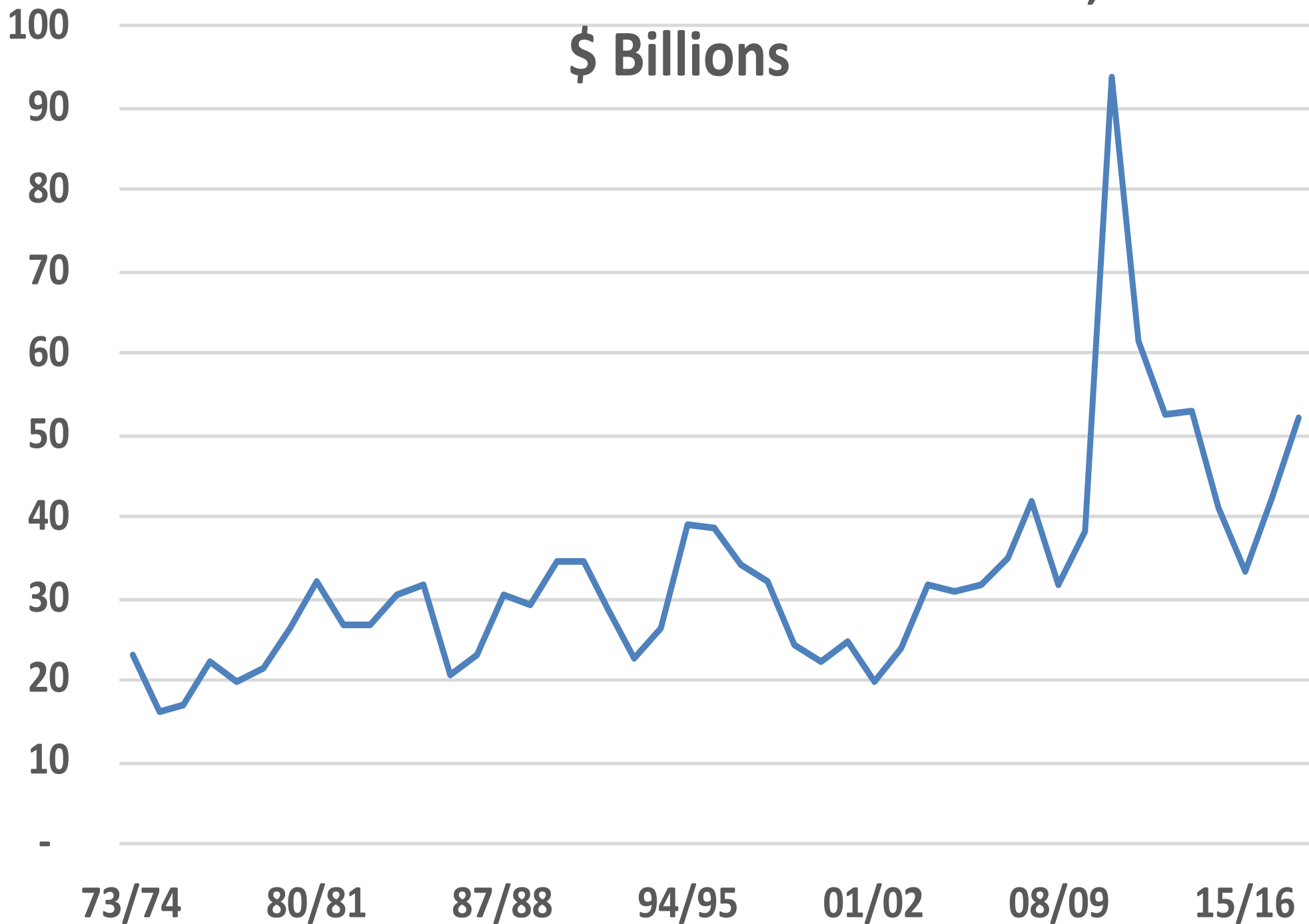




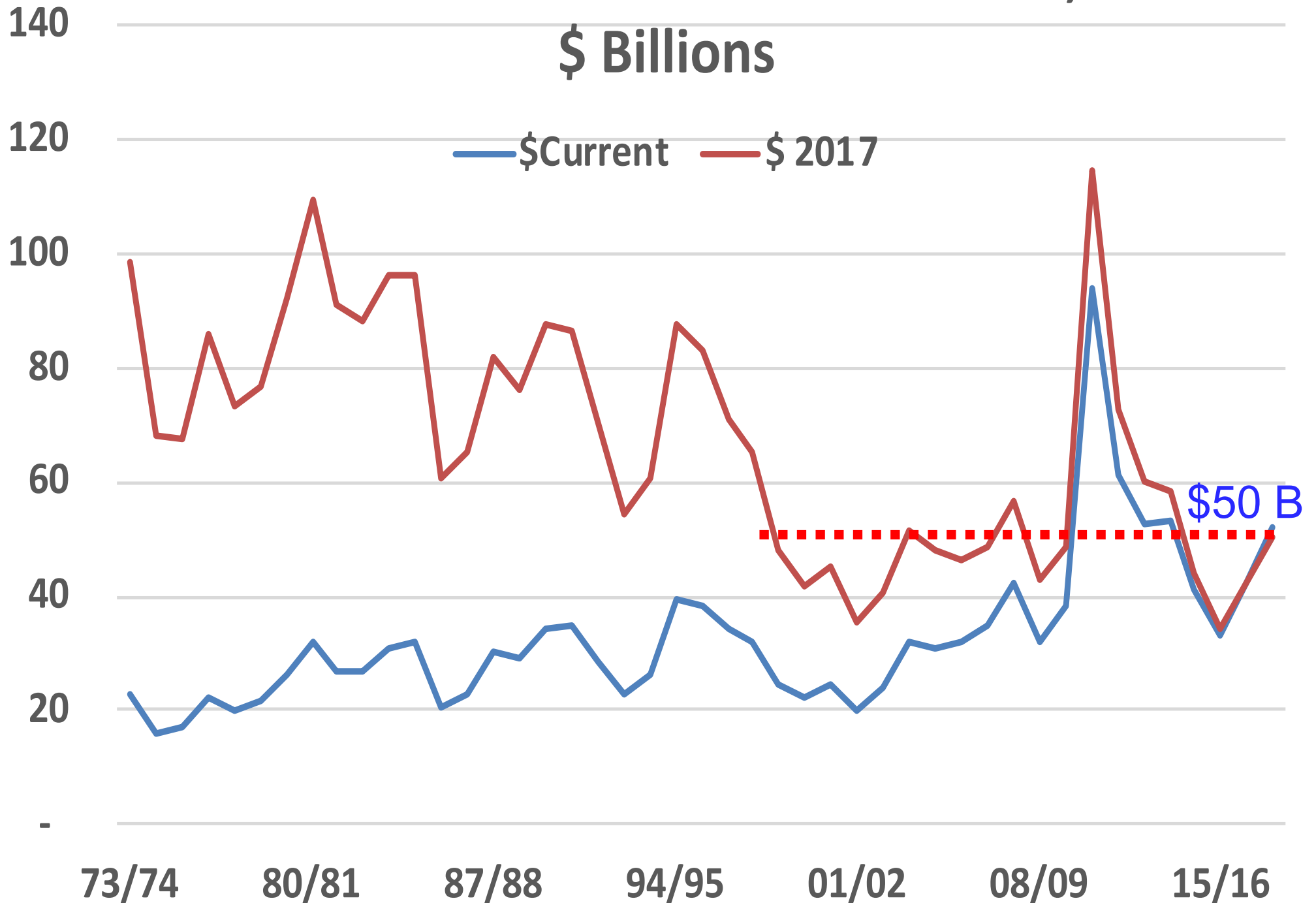
Is cotton doomed
to follow sisal,
hemp, jute &
linen as niche
products and
relics of history?

First, a metric:

Value of World Cotton Production, \$ Billions



Value of World Cotton Production, \$ Billions





Cotton must do things better

Cotton must do things differently



© Capt. William Hoey
MarineTraffic.com

Innovation: Key to Natural Fiber Survival

Doing things better:

Higher yields

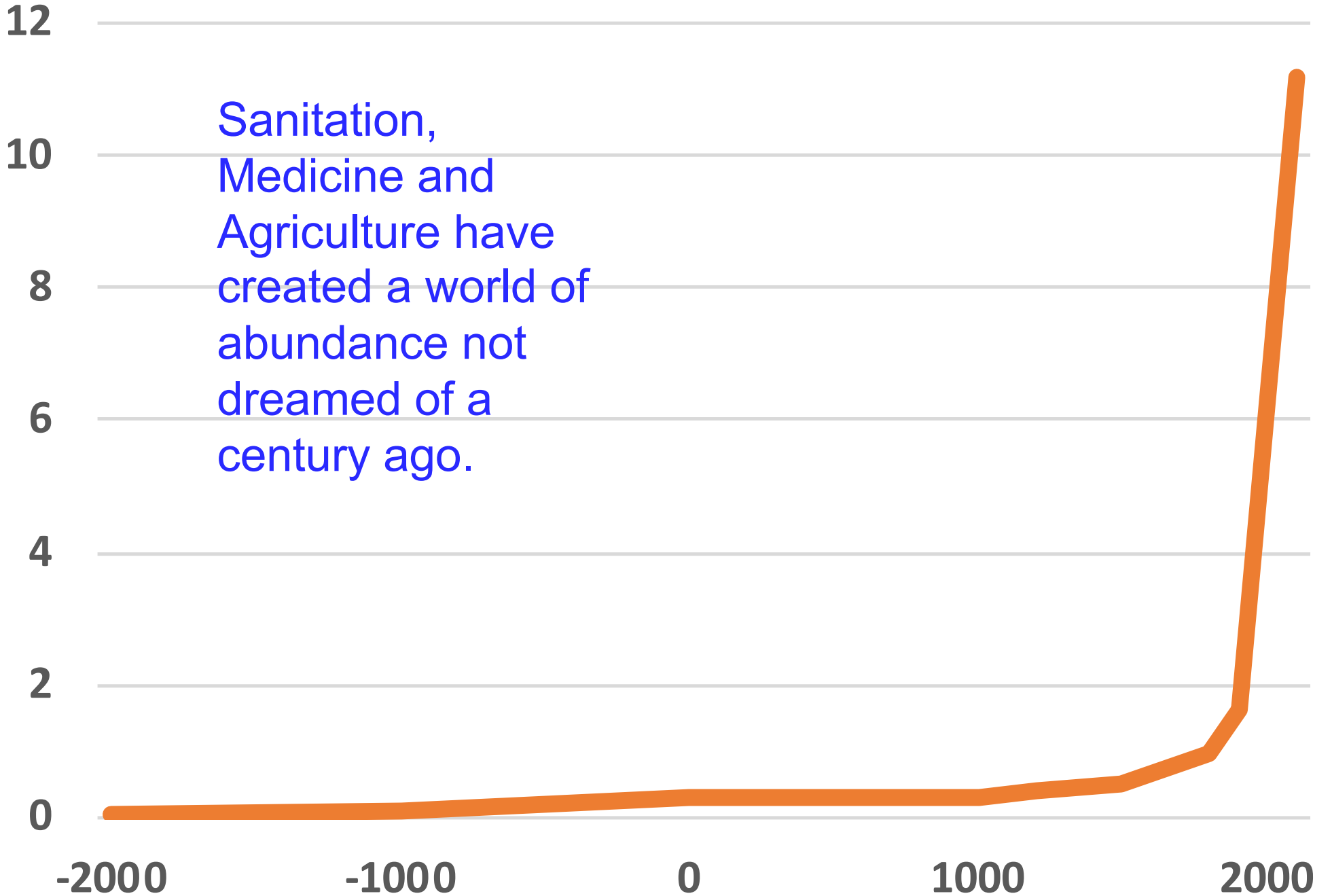
Reduced resource use

Doing things differently:

Enhanced fiber characteristics

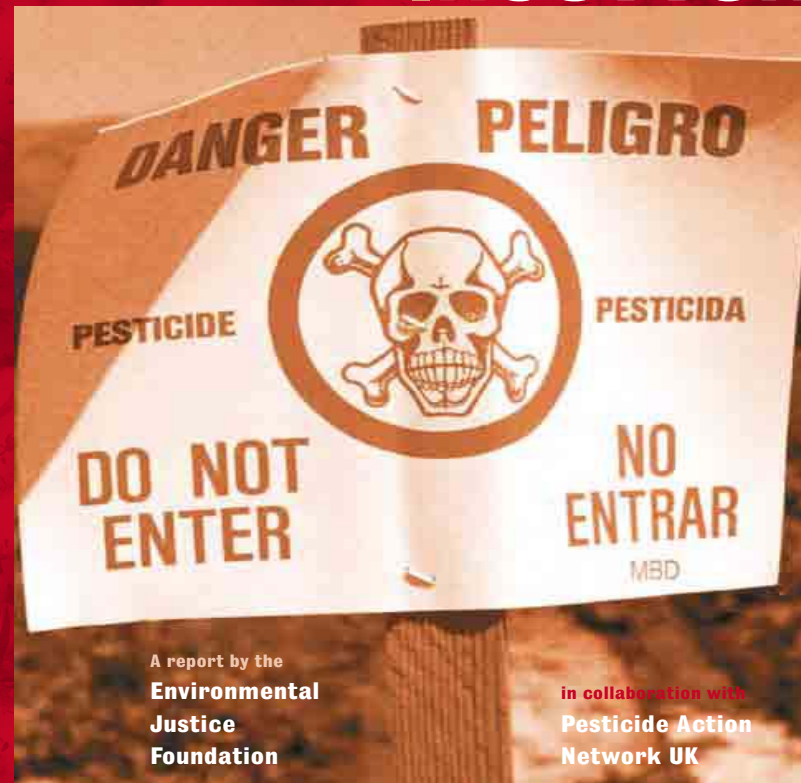
New Product Applications

World Population, Billions



Sanitation,
Medicine and
Agriculture have
created a world of
abundance not
dreamed of a
century ago.

THE DEADLY CHEMICALS IN COTTON



A report by the
**Environmental
Justice
Foundation**

in collaboration with
**Pesticide Action
Network UK**

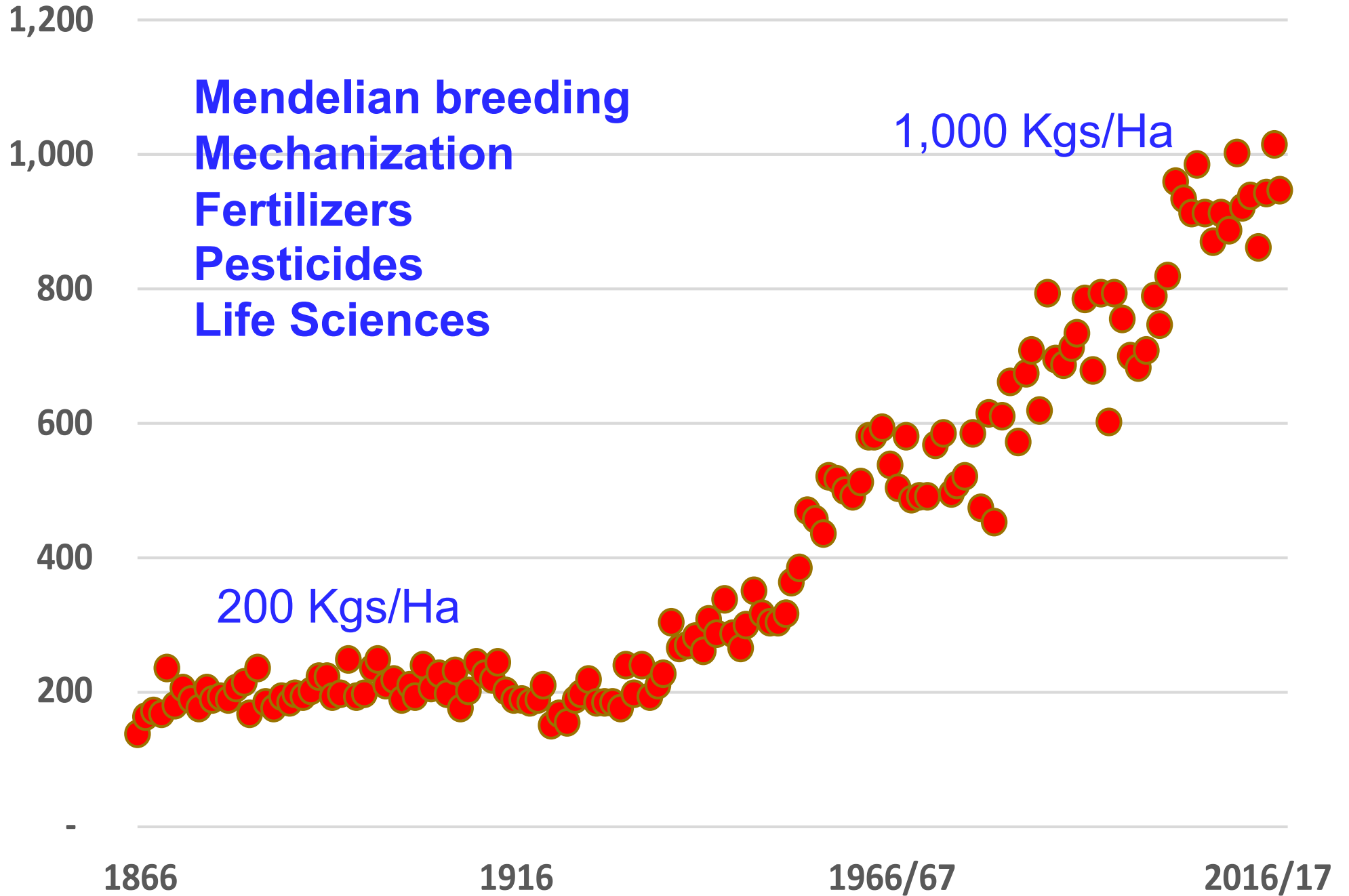
Partnership for Sustainable Textiles

Cotton is Destructive & Exploitative

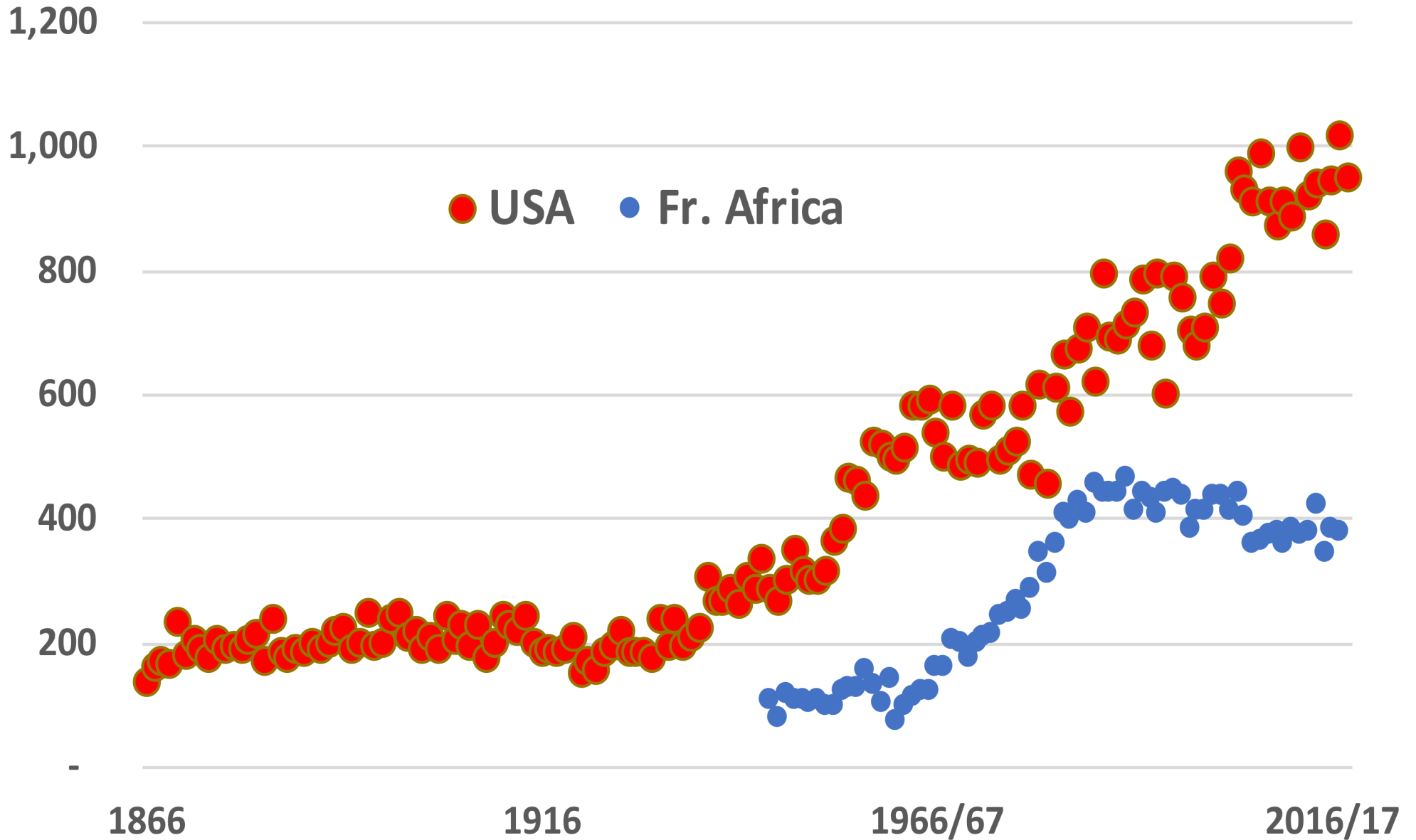


Group photo during the 1st members' meeting 2015 (far left: Ingeborg Neumann, Werner Lange, Dr. Uwe Mazura, Maik Pflaum, Nico Kemmler, Claudia Kersten, Berndt Hinzmann, Minister Dr. Gerd Müller, Dr. Bernhard Felmberg, Dr. Gisela Burckhardt, Frank Zach, Dr. Johannes Merck, Stefan Genth, Josef Sanktjohanser.) © Textilbündnis/T.Ecke

US Cotton Yields, Kgs/Ha



Cotton Yields, Kgs/Ha





Commercial
Standardization of
Instrument Testing
of Cotton (CSITC):

Aligning incentives
with relevant
quality parameters



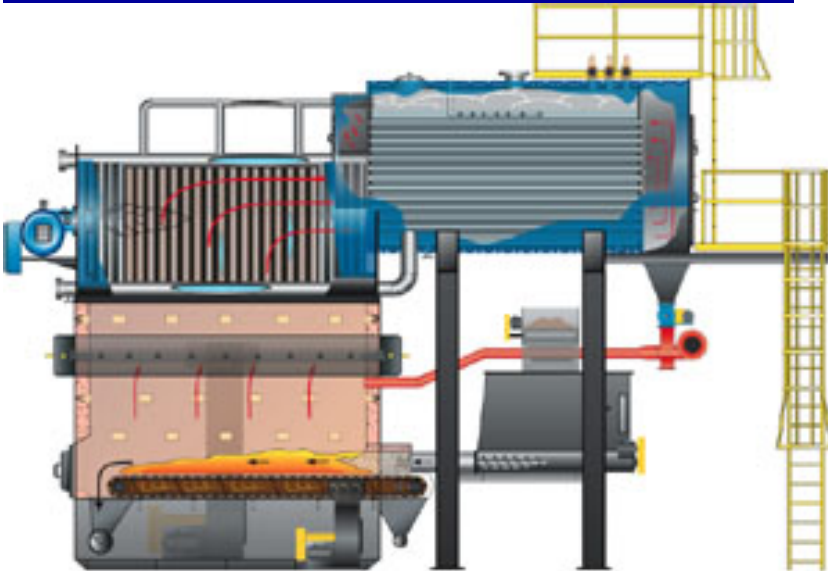
Feed for Livestock

- Agricultural biomass can be processed into a high energy roughage for ruminant livestock



Fuel Source

- Agricultural biomass can be made into a fuel source for residential and industrial applications



Soil & Turf Products

- Agricultural biomass can be made into products for erosion control & grass seed establishment.



Composites

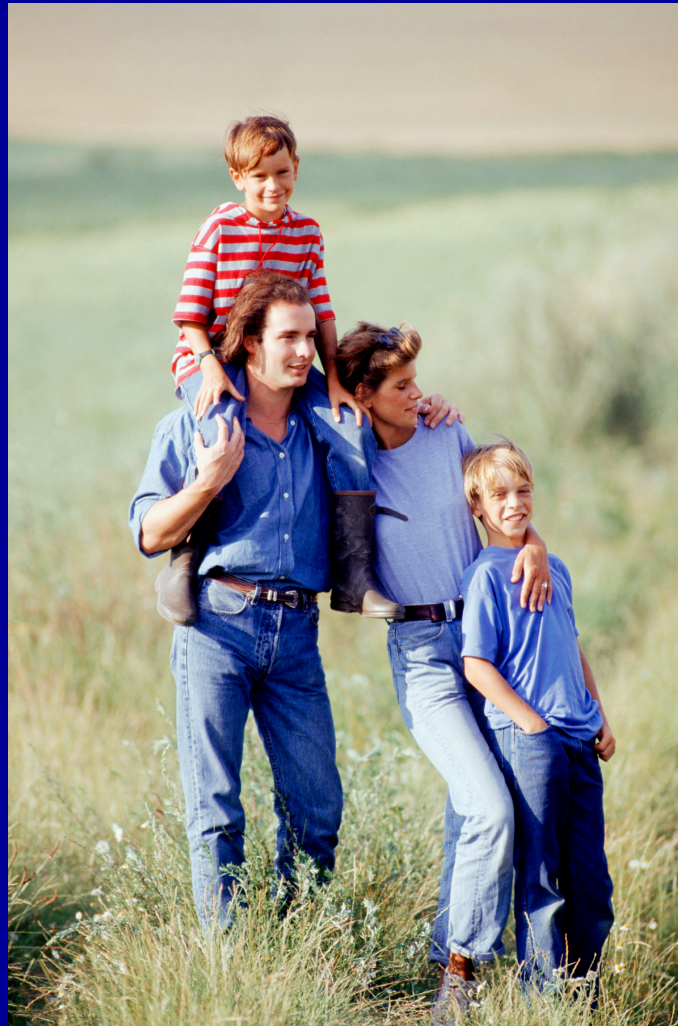
- Agricultural biomass can be used as raw materials for various composite materials.



Consumer Preference: Natural Fibers' Advantage

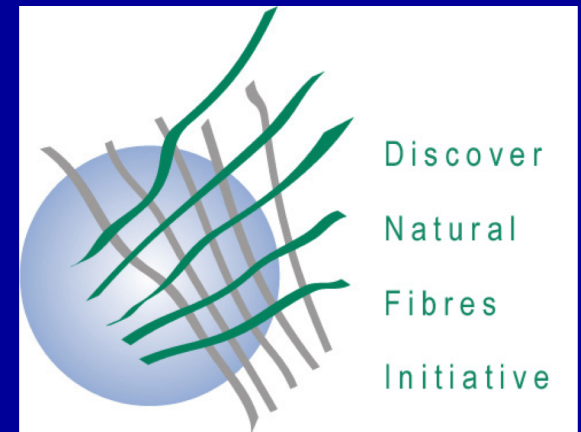


250 Million People: Cottons' Advantage



Maintaining the Value of World Production at \$(2017)50 Billion:

- Support Science;
- Align price incentives with qualities desired by users;
- Communicate positive messages;
- Increase/Improve fiber and biomass performance characteristics.





Cotton, Chemical Fiber and Future

China National Textile And Apparel Council

Duan Xiaoping

2018.09.07

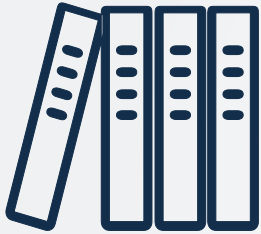


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Part 01

Relationship Between Cotton and Chemical Fiber

Substitution

With the development of economy, the upgrade of consumption, and the pursuit of functional, differentiated and fashionable products of the market, the chemical fiber can meet the above needs based on physical and chemical modification, and actively replace parts of the cotton application market. In China, the cotton price difference between domestic and overseas caused by the quota policy makes the cost of cotton different, so the substitution of chemical fiber is more obvious.

The nature of viscose staple fiber is closer to that of cotton, so it has a stronger substitution for cotton.

Polyester filament yarn can directly replace some cotton yarn, thus saving the spinning process and providing more cost advantages.

Competition

Healthy competition and mutual promotion. The chemical fiber has more advantages in cost and development, the growth of cotton output is limited, therefore, before biotechnology has made a revolutionary breakthrough, the increasing of output in the future will mainly depends on chemical fiber; the room for modification of cotton is narrow, however, with the improvement of the following spinning and weaving, some disadvantages of cotton have been made up.

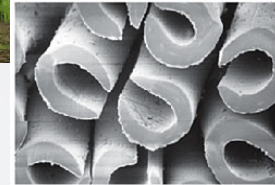
Interdependency

In the future, cotton market and chemical fiber market will have their own space but are interdependent with each other. Blending makes cotton and chemical fiber complementary in performance, and the change of market demand and consumption habit makes cotton and chemical fiber supplement each other as the main textile raw materials.



Part 01

Relationship Between Cotton and Chemical Fiber



Comparison of Advantages and Disadvantages of Cotton and Chemical Fiber

| | Cotton | Regenerated cellulose staple fiber | Polyester staple fiber |
|---------------------|--|--|--|
| Core resource | Soil, water | Forest | Crude oil |
| Product performance | Skin-friendly Low strength | Skin-friendly High strength | Moisture absorption and sweat releasing High strength |
| Product features | Renewable Degradable | Renewable Degradable | Recyclable Not readily degradable |
| Deliverability | Insufficient supply of domestic cotton Limited quota of imported cotton | Sufficient supply | Sufficient supply |
| Production process | Occupation of land Uses of pesticide Large water consumption | Small land area Production of waste gas and waste water High water consumption | Small land area Less three wastes Low energy consumption |
| Labor force | Large | Small | Small |



Unit: 10,000 t

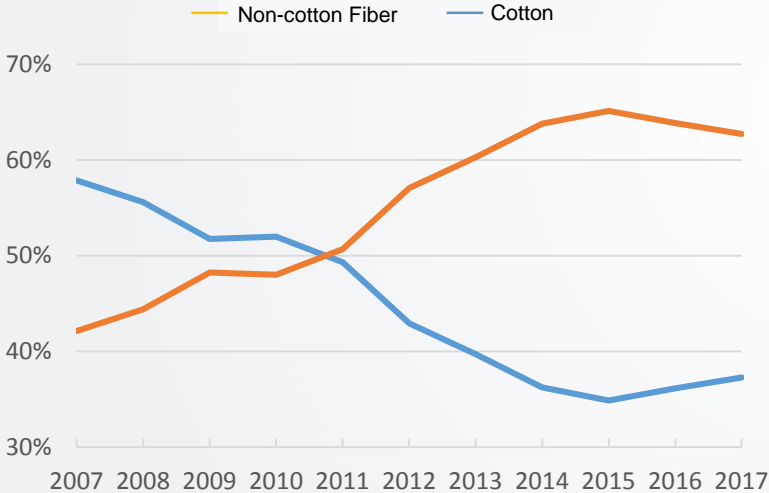
Fiber Consumption in Cotton Spinning Industry of China in Recent Ten Years

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2017 Proportion |
|--|------|------|------|------|------|------|------|------|------|------|------|-----------------|
| Cotton | 1150 | 1050 | 1050 | 1150 | 1050 | 880 | 810 | 710 | 675 | 715 | 755 | 37.3% |
| Viscose staple fiber | 106 | 103 | 114 | 150 | 167 | 230 | 280 | 295 | 300 | 305 | 340 | 16.8% |
| Polyester staple fiber (including regenerated fiber) | 703 | 715 | 840 | 884 | 892 | 920 | 960 | 930 | 930 | 958 | 900 | 44.4% |
| Total amount of non-cotton fiber (Including others) | 837 | 838 | 979 | 1060 | 1080 | 1170 | 1230 | 1250 | 1260 | 1263 | 1270 | 62.7% |

Data sources: China Cotton Textile Association, China Cotton Textile Association

1. The cotton consumption in 2015 was 6.75 million tons, which was 41.3% lower than that in 2007.
2. The viscose staple fiber for cotton spinning in 2017 reached 3.4 million tons, which was 220% larger than that in 2007.
3. Polyester staple fiber for cotton spinning reached 9.6 million tons, which was 36.6% larger than that in 2007, but declined to 9 million tons in 2017, the output of recycled polyester staple fiber was mainly effected by the “Waste Prohibition” of China.
4. The amount of non-cotton fiber consumed in the cotton spinning industry in China increased continuously, reaching 12.7 million tons in 2017, with an increase of 51.7% than that in ten years ago.

Increased Proportion of Non-cotton Fiber Consumption from 2007 to 2017



Price Chart of Viscose Staple Fiber, Polyester Staple Fiber and Cotton Since 2010





- According to the data of China Cotton Association in 2017, the cotton planting area nationwide is 44.13 million mu with output of 6.05 million tons. Based on this calculation, 5 million tons of cotton (lint cotton) requires 2.43 million hectares of cotton field.
- According to the growth rate of tropical fast-growing trees, the wood pulp used for viscose staple fibers can be used in 6 years, with production of viscose staple fibers of 30 tons per hectare, that is, 5 tons/hectare per year. Based on this calculation, 5 million tons of viscose staple fiber requires 1 million hectares of fast-growing forest. However, 95% of pulp and pulping wood in China are imported, and the actual land occupation may only take into account the occupation of factory for viscose staple fiber. 5 million tons of viscose staple fiber requires an area of about 1400 hectares.
- The direct spinning polyester staple fiber project with an annual output of 400,000 tons in China covers an area of 720 *mu*. Based on this calculation, 10 million tons of direct spinning polyester staple fiber requires an area of 1200 hectares.



Part 02

Cotton



Balance of Supply and Demand of Cotton in China

Statistics of Cotton for Cotton Spinning Industry in China

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------------------|------|------|------|------|------|------|------|
| Consumption of Chinese cotton | 714 | 367 | 395 | 466 | 528 | 625 | 640 |
| Consumption of imported cotton | 336 | 513 | 415 | 244 | 147 | 90 | 115 |
| Total | 1050 | 880 | 810 | 710 | 675 | 715 | 755 |

Data sources: General Administration of Customs of the People's Republic of China, China Cotton Textile Association

Statistics of Cotton Supply in China

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|------------------------------|------|------|------|------|------|------|------|
| Cotton reserves | 518 | 1120 | 1353 | 1113 | 1107 | 842 | 520 |
| Supply and storage (release) | — | 49 | 398 | 240 | 6 | 265 | 322 |
| Acquisition and storage | 313 | 651 | 631 | — | — | — | — |
| Output | 660 | 730 | 750 | 650 | 586 | 494 | 605 |

Data sources: consultation with relevant organizations

Difference in Price of Cotton Between Domestic and Overseas

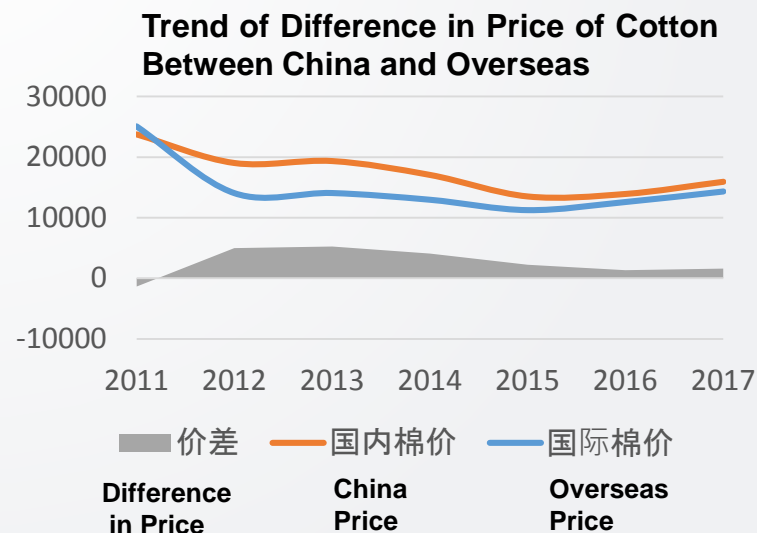
Statistics of Difference in Price of Cotton Between China and Overseas

Unit: RMB Yuan/ton

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|
| China price of cotton | 23737 | 19010 | 19330 | 17040 | 13486 | 13900 | 15909 |
| International price of cotton | 25083 | 14055 | 14070 | 12959 | 11244 | 12588 | 14325 |
| Price difference | -1346 | 4955 | 5260 | 4081 | 2242 | 1312 | 1584 |

Data sources: China Cotton Textile Association

- In order to stabilize cotton production and protect the interests of cotton grower, a temporary cotton acquisition and storage system was implemented during 2011 - 2013 in China, with an acquisition and storage capacity of nearly 16 million tons.
- The acquisition and storage led to an increase in the price difference between domestic and foreign cotton, with largest difference as RMB 6,000, the domestic cotton spinning enterprises were under great pressure, which affected the stable operation of industry chain of cotton spinning in China.



Evolution of Cotton Policy of China

1999

China and the United States signed a bilateral agreement on China's accession to the World Trade Organization in Beijing. China has promised an import quota of 743,000 tons of cotton under customs duties and increased to 894,000 tons in 2004.

2011-2013

Temporary cotton acquisition and storage system

2014-2016

Launch the three-year pilot project of target price of cotton in Xinjiang

2005

Since May 1, 2005, import of cotton exceeding the quota shall be subject to the sliding duties, and 5% to 40% of the customs duties is collected according to different prices. The sliding duties rate has been continuously adjusted.

2014

Cancel the temporary acquisition and storage of cotton

2017-now

Deepen the reform of target price of cotton in Xinjiang and determine the target price of cotton for 2017 - 2019 and continue the pilot



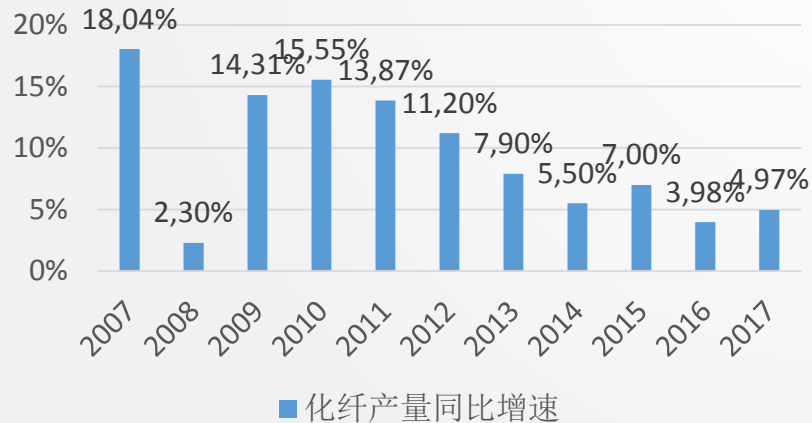
Part 03

Chemical Fiber

Output of the Chemical Fiber in China Has Steadily Increased

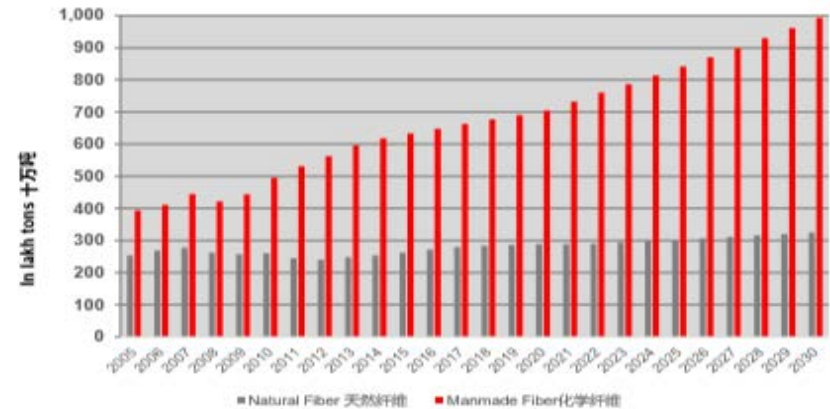
- In the past ten years, the output of chemical fiber in China keeps increasing, with an average annual growth rate of 7.38%.
- With the continuous expansion of the base and the adjustment of global division of labor, the growth rate of chemical fiber output has gradually slowed down.

Growth Rate of Output of Chemical Fiber in China



Year on Year Growth Rate

Continuous Growth in Manmade Fiber until 2030 oerlikon 2030年前化纤产业将持续增长



**0.253
BILLION**

The United Nations predicts that the processing of fiber in the world will reach 253 million tons in 2050 and 80.82 million tons in 2010, of which 49.95 million tons will be chemical fibers. According to double-entry calculation based on this, the average annual growth rate of the processing of global fiber is 2.89%.

- International: the potential consumption market in developing economies are to be released;
- Domestic: income growth of residents, urbanization, rural revitalization strategy and rapid development of consumer finance provide active support for the expansion of domestic demand; the chemical fiber expands more consumption space for industrial use, consumption upgrading, etc.

- Integrated development of refining and chemical industry. Leading polyester enterprises develops the system of refining-chemical integration and become large chemical enterprise groups of “crude oil - PX - PTA - PET - polyester”, to ensure more stable supply of raw materials of chemical fiber.
- Increased industrial concentration. In 2017, the production capacity of top 8 chemical fiber enterprises accounted for 30.8% of the country, which was 10% larger than that in 2010.
- Intelligent manufacturing. The intelligent links such as automatic winding, automatic conveying, automatic detection, automatic packaging, and three-dimensional warehouse have been basically mature, and the reduction of workers in workshops is about 50%.
- Green development. Energy conservation and emission reduction technologies are promoted to build a recycling system, and vigorously develop green fibers. The Collaboration for Sustainable Development of Viscose is established to promote the collaboration enterprise to reach a global leading level in environmental protection within three years.



再生纤维素纤维行业
绿色发展联盟
COLLABORATION FOR SUSTAINABLE
DEVELOPMENT OF VISCOSE



China Fibers Fashion Trends - Focus of Scientific and Technological Innovation

Supply improvement - variety increase, quality improvement and brand making



China Fibers Fashion Trends has been successfully issued for 7 sessions, building a good communication platform and bridge for chemical fiber brand enterprises, downstream enterprises, designers and consumers. Based on the strong chemical fiber industry in China, the China Fibers Fashion Trends insists on innovation driving, fashion leading and pollution-free development, drives the “quality improvement, variety increase and brand making” of textile industry chain and creates “Chinese Fiber”.

Through the research and issuance of "China Fibers Fashion Trends", the textile industry chain can be driven to support the whole promotion and fundamental transformation of the value chain with focus on new product development and innovation-driven demand, the overall competitiveness of the industrial chain is enhanced, and the contribution rate of fiber brands to the development of textile and chemical fiber industry is increased.

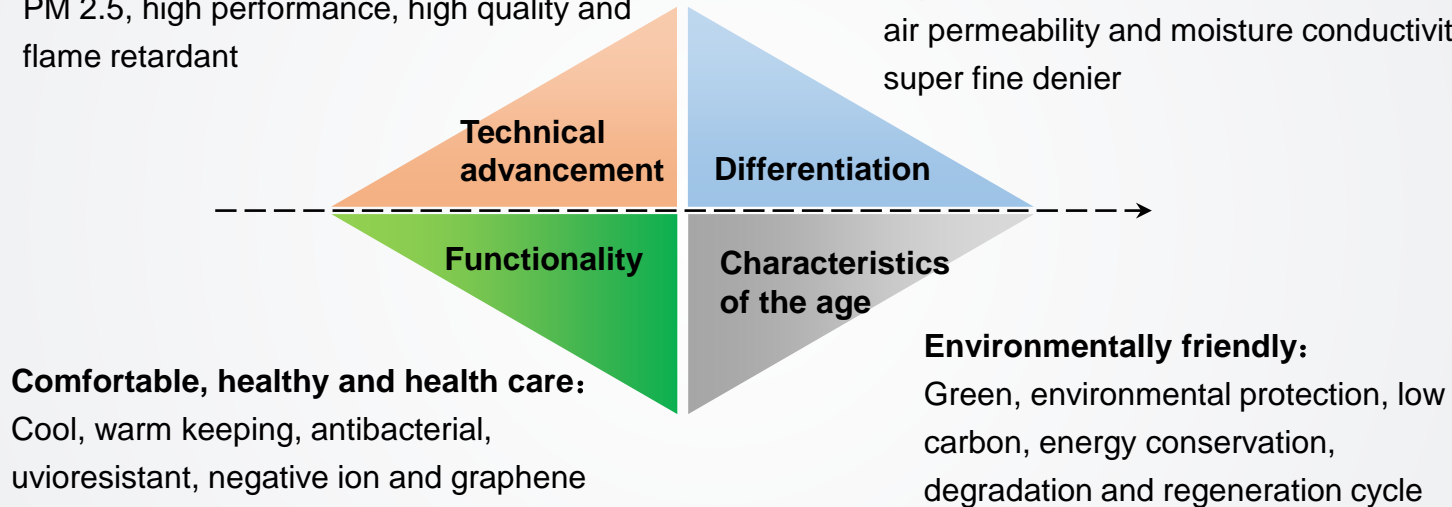


Human body safety, industrial protection and structural strengthening:

PM 2.5, high performance, high quality and flame retardant

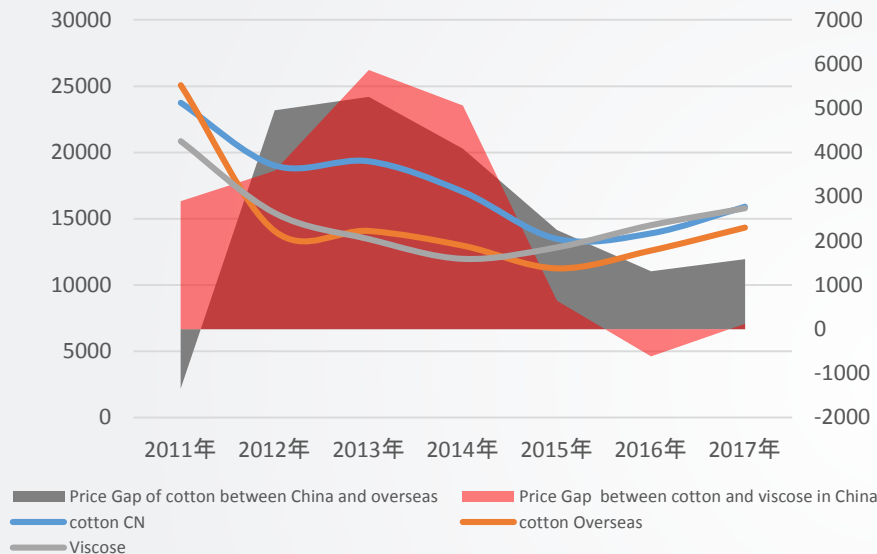
Human body friendly, light, dynamic and fashion:

High simulation, , cotton-like, flax-like, high air permeability and moisture conductivity, super fine denier



- **Fiber is the origin of the textile industry chain. Only when technological innovation and brand creation of fibers and final products promote each other and produce superposition effect, can the overall level of textile industry in China be accelerated and the value of the overall industry chain be enhanced.**

Comparison of Difference in Price of Cotton - Cotton Viscose Between China and Overseas



630,000 tons of conventional viscose staple fiber has already been put into use in the past year, 680,000 tons is proposed for the next year, and 1.1 to 3.6 million tons is planned for the next five years.

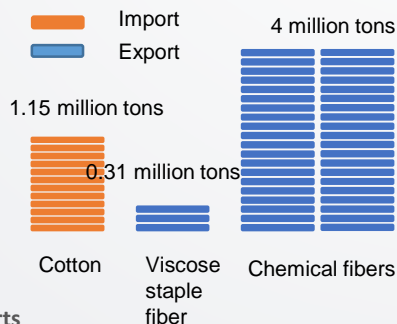
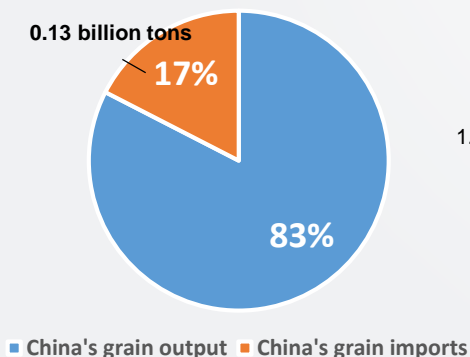


再生纤维素纤维行业
绿色发展联盟
COLLABORATION FOR SUSTAINABLE
DEVELOPMENT OF VISCOSE

The current capacity of Lyocell staple is 45,000 tons, 135,000 tons is proposed within five years, and 740,000 tons is proposed for other planned projects.

Food Supply in China in 2017

Import and Export of Textile Raw Materials in 2017



- The acquisition and storage led to the enlargement of price difference between domestic and foreign cotton in China, while the price of viscose staple fiber maintained a relatively stable and reasonable trend, which played a very positive role in digesting the price difference between domestic and overseas cotton, and maintained the balance of raw material market of cotton spinning industry in China.
- The conflicts between the grain and cotton fields in China is still prominent. Under the intense international trade in the future, it is difficult to effectively expand the planting area of cotton, and viscose fiber can make up for the shortage of cotton supply.

Brief Summary

- 1 For the competition between chemical fiber and cotton in the past 10 years, although chemical fiber has a certain advantage, the competition is basically healthy, which has promoted the technological progress of industries.
- 2 Chemical fiber and cotton will coexist peacefully and occupy their own markets respectively in the future, but the increase of output will mainly rely on chemical fiber.
- 3 Due to obvious competitive advantages, the chemical fiber in China will continue develop, but the speed of development will gradually slow down, and will basically keep pace with the global growth rate around 2020, and the proportion of chemical fiber in the world will be basically stable.
- 4 The increase of output of chemical fiber in China is more frequently used in industry, however, due to comparative advantages and international division of labor, the proportion of industrial fiber will not be equal to that of the western countries.
- 5 Due to large population and limited available agricultural area in China, more attention shall be paid to grain production in the future. With the influence of climate and soil conditions, cotton cultivation will be further concentrated in Xinjiang.
- 6 The import of cotton will be further enlarged and quotas will be increased in China. The system of warehousing and launching in turn will be launched at an appropriate time (the reserve of national cotton is about 2.5 million tons by the end of September), and the specific operation will be more market-oriented.
- 7 Blending and interweaving are beneficial to give play to the characteristics and advantages of various fibers, and obtain special properties and different fabric styles, but not conducive to the recycling of chemical fibers and natural degradation of waste fabrics. Therefore, the blending and interweaving of cotton and viscose fiber shall be encouraged.



THANK YOU

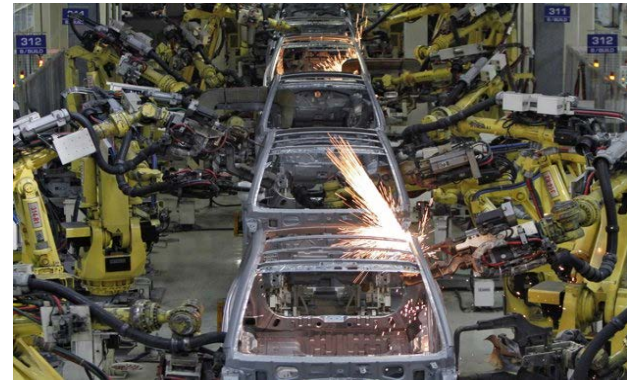
Trends in Global Fibre Production & Consumption

ITMF Annual Conference, Nairobi 2018

Dr. Robin MacDonald 7th Sept 2018



What do these 4 pictures have in common?

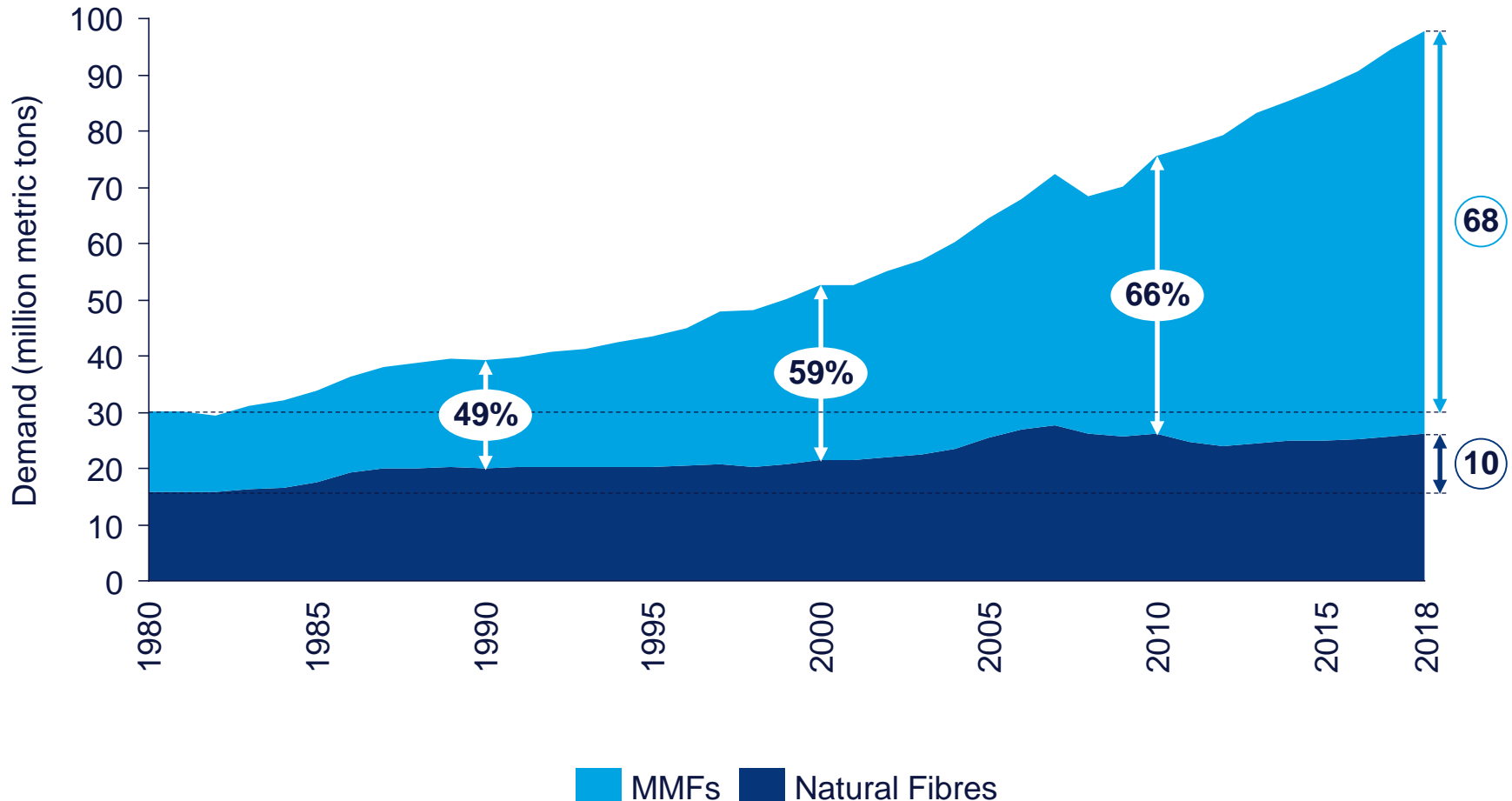


Agenda

- 1 Demand for Fibres**
- 2 The Supply of Fibres**
- 3 Fibre Supply & Demand: The Difference Between These Two Things**
- 4 The Implications Of This Difference**
- 5 Closing Remarks**

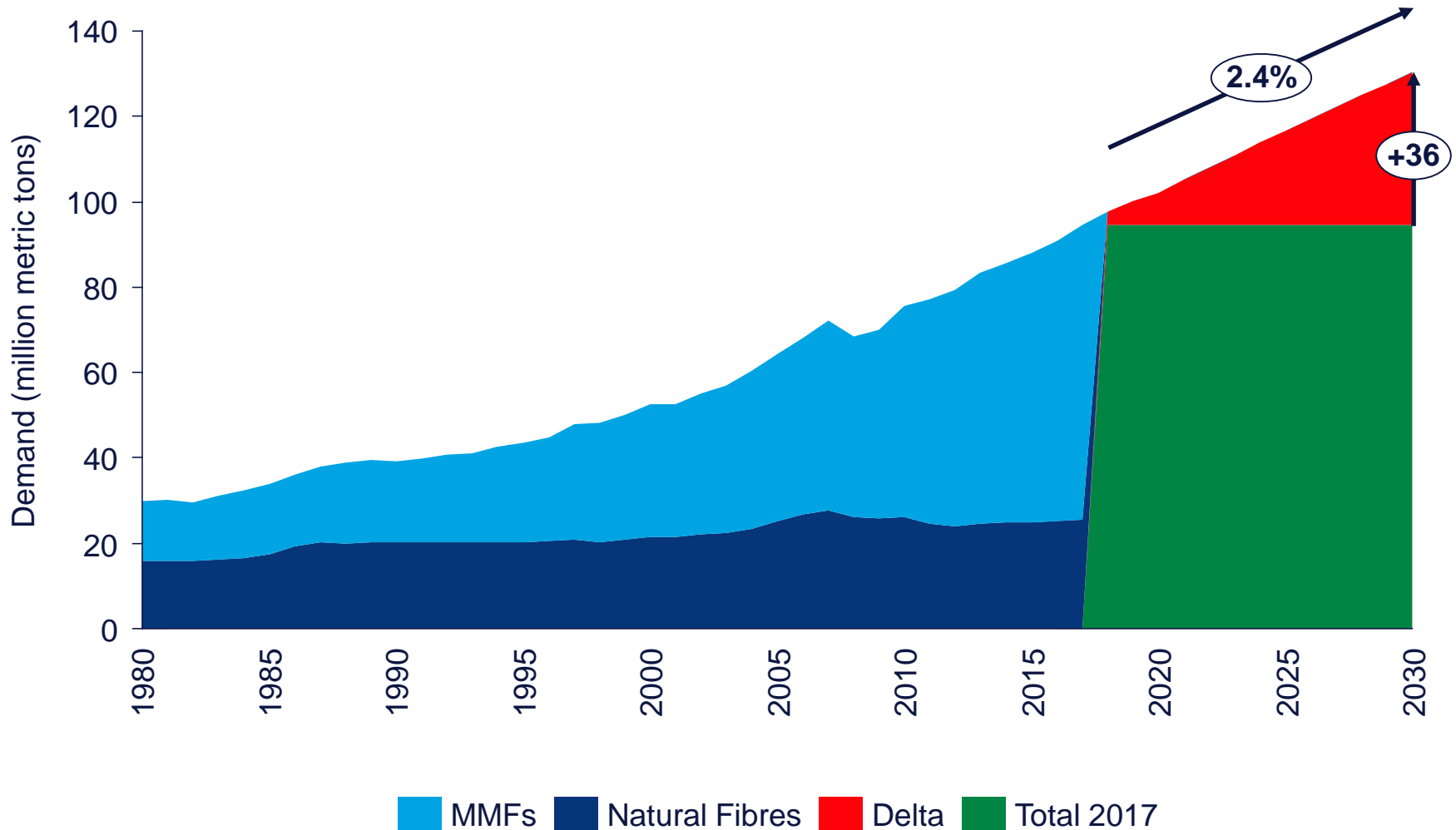
Global Fibre Demand: 1980-2018

Global demand grows 68 mtpa from 30 mtpa in 1980 to 98 mtpa in 2018. MMF take 85% of this growth. In 2018, MMF supply 72% of global demand; natural fibres supply 28%.

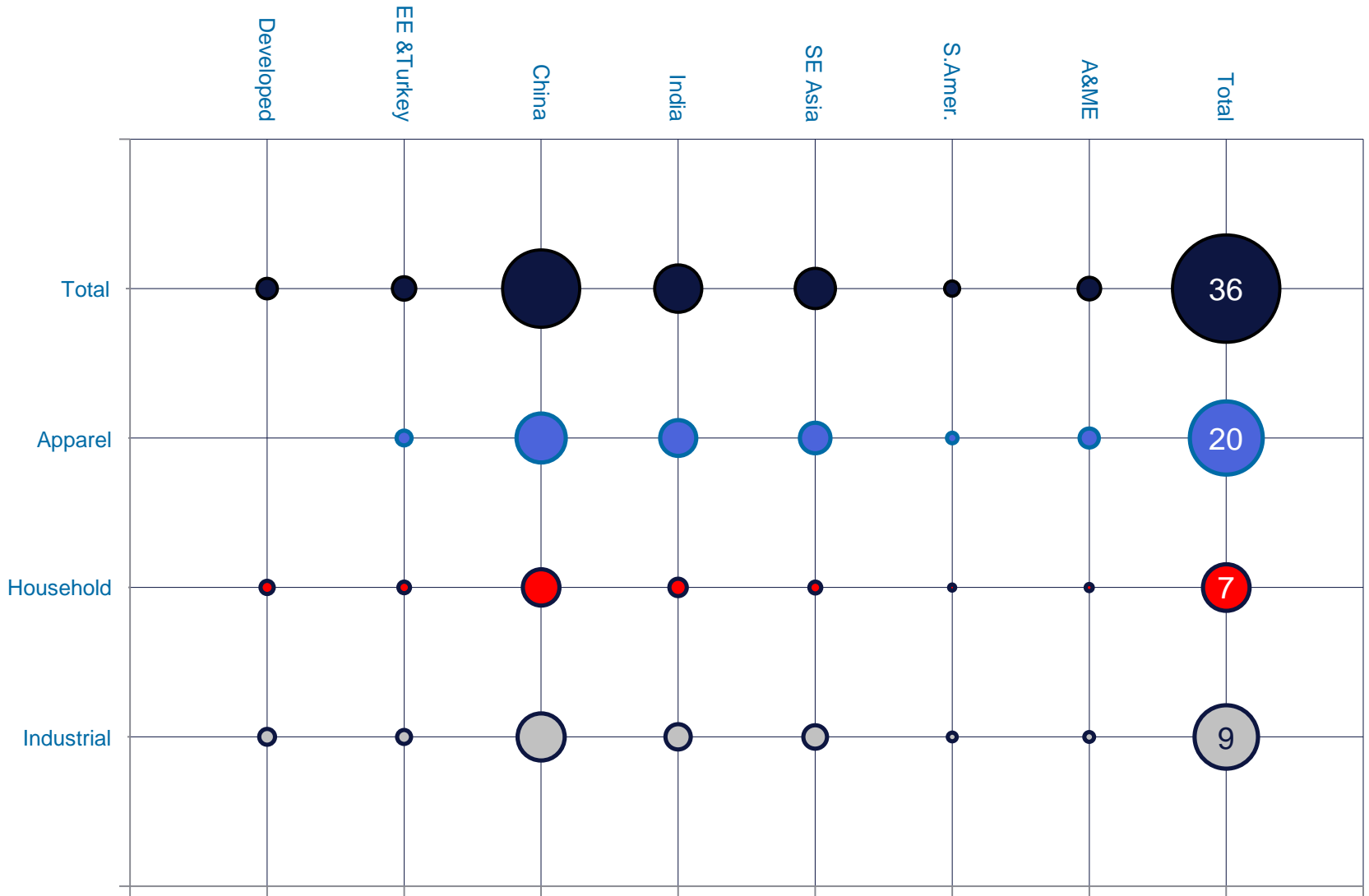


Global Fibre Demand: 1980-2030

WoodMac predicts Global Fibre Demand will increase to 130 mtpa by 2030, +2.4% CAGR.

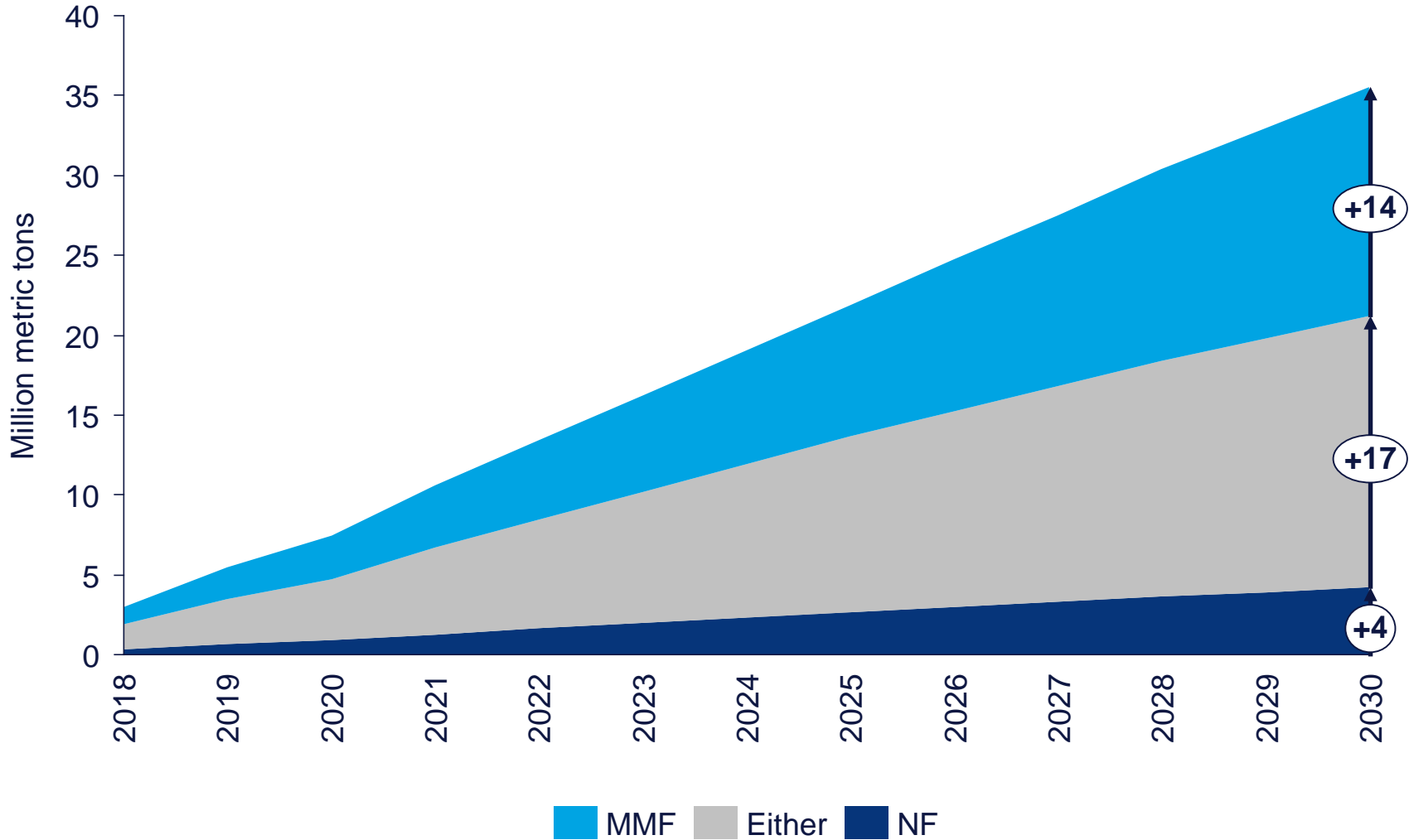


Where is this new demand coming from?



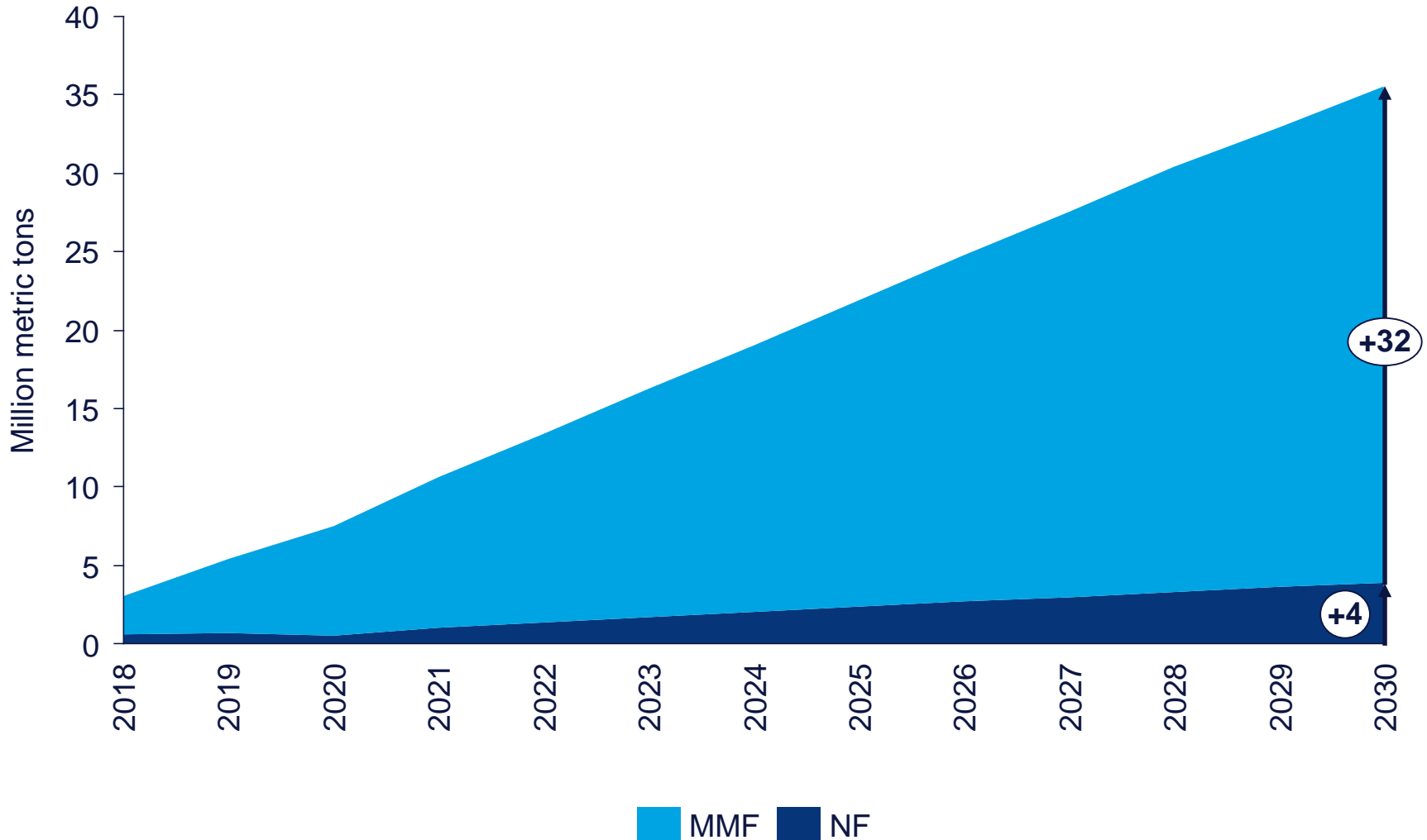
How will this new demand be supplied?

A Performance-Based View



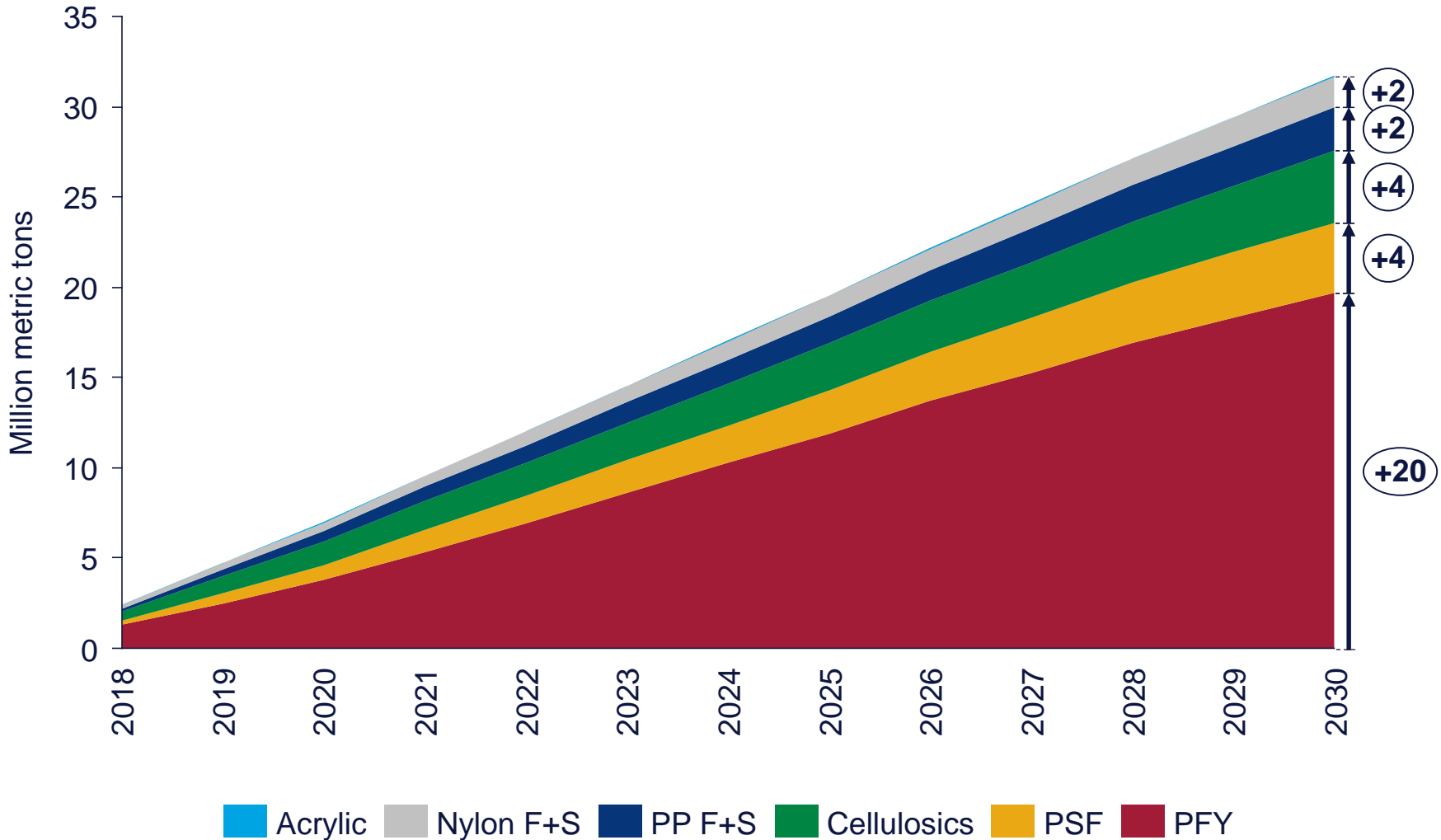
How will this new demand be supplied?

The Wood Mackenzie View



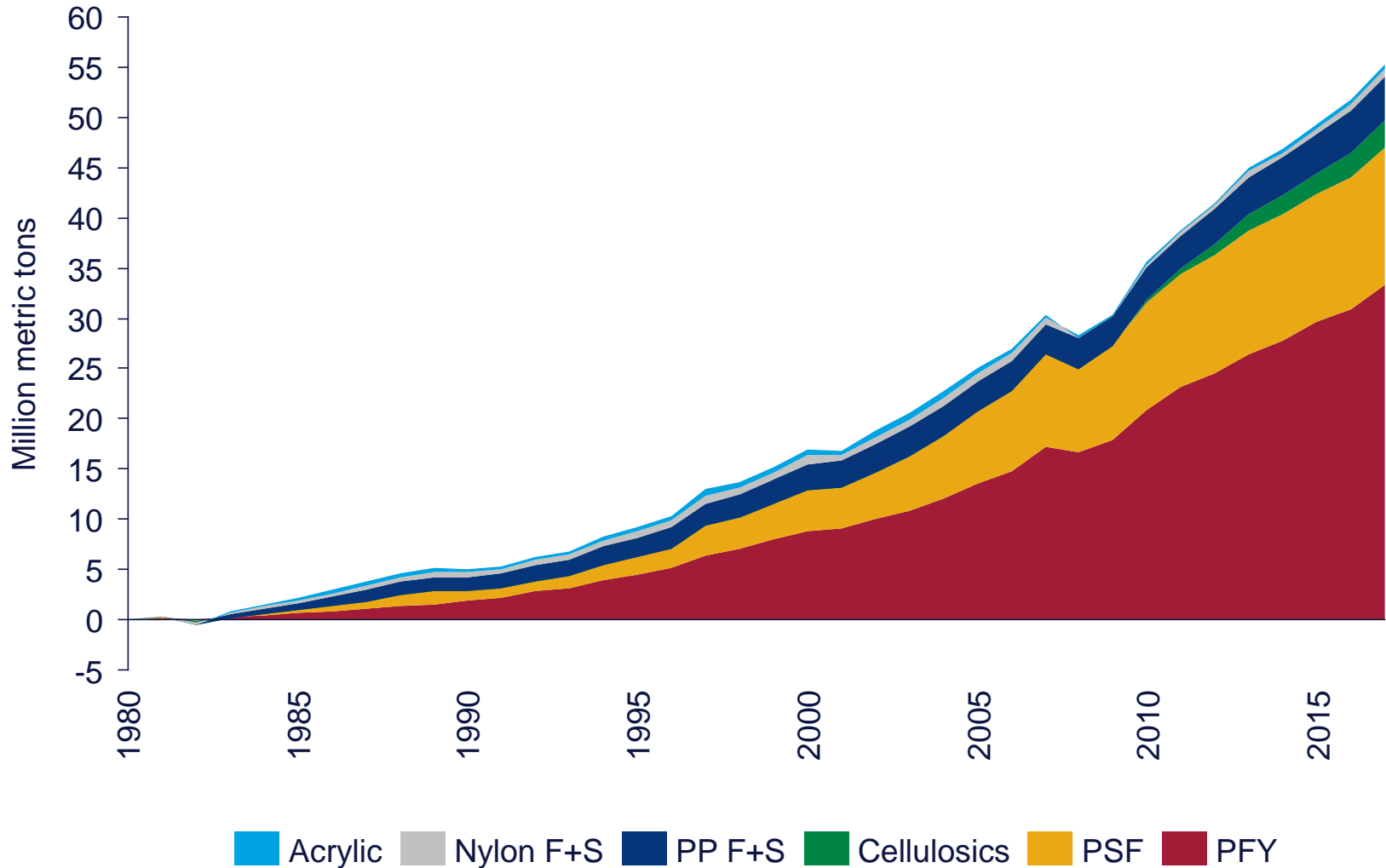
How will this new demand be supplied?

The expected breakdown of this new MMF supply



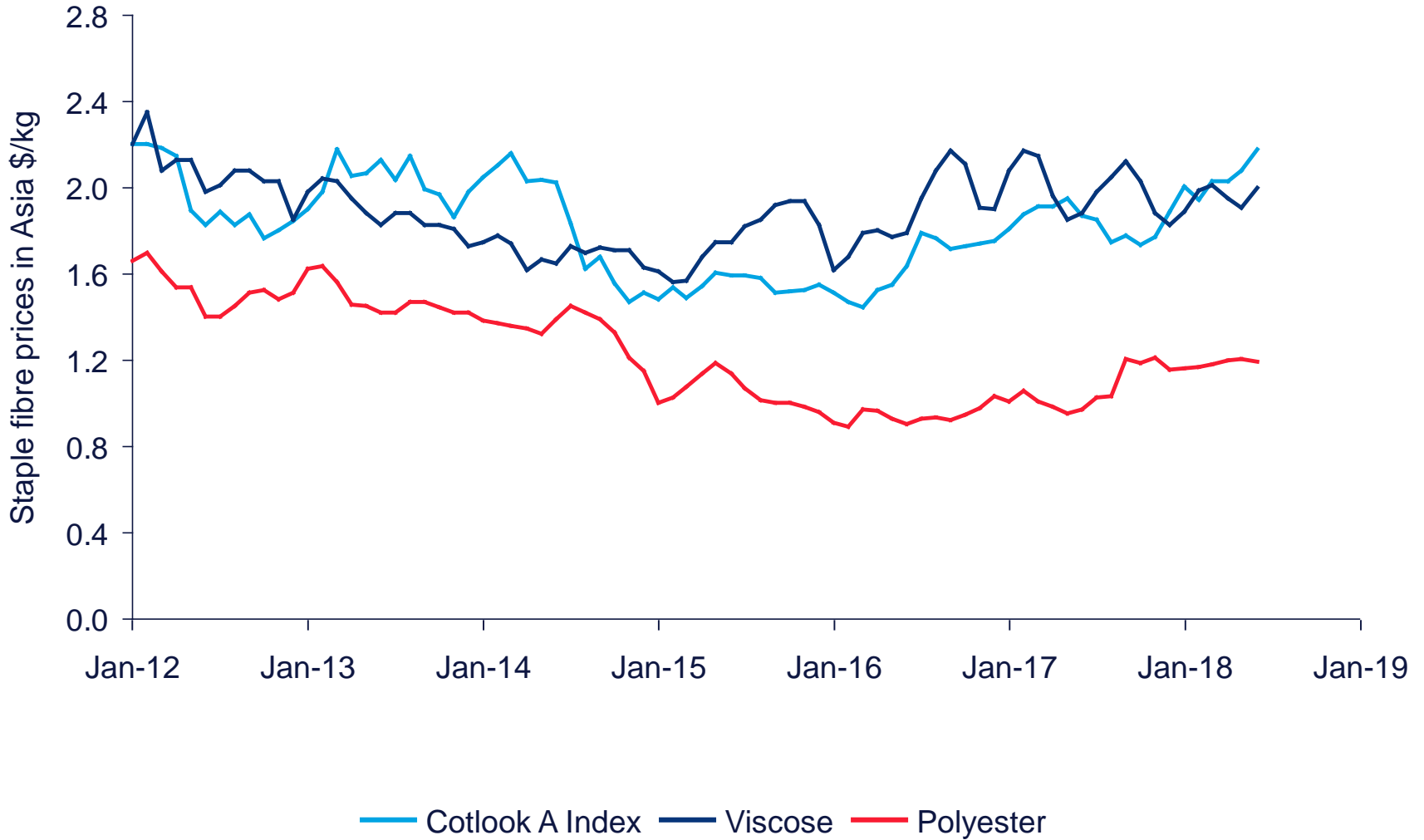
How will this new demand be supplied?

Fibre demand growth by Fibre Type since 1980



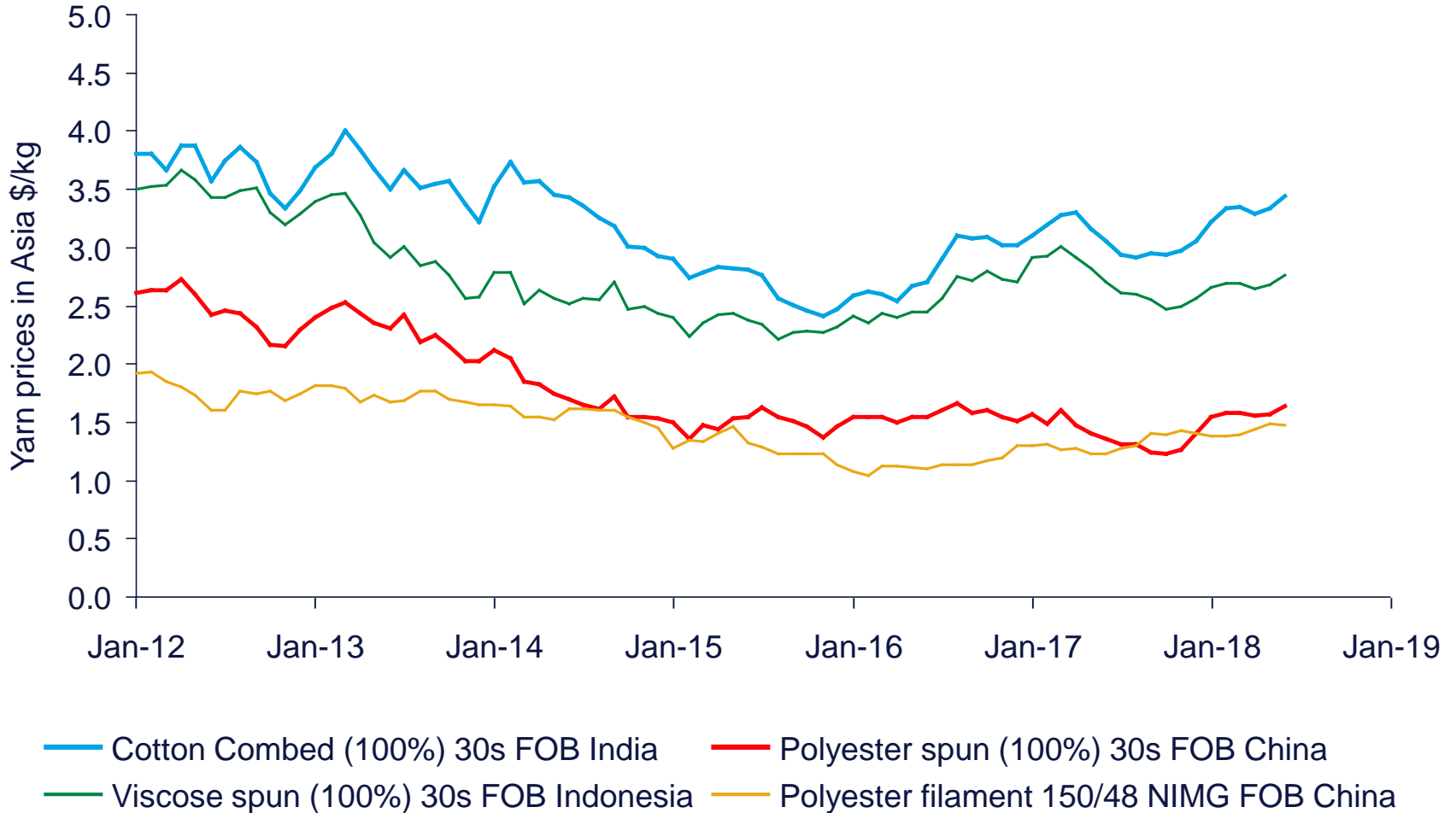
Why Polyester?

Three main reasons... 1) Price, 2) Price and 3) Price



Why Polyester?

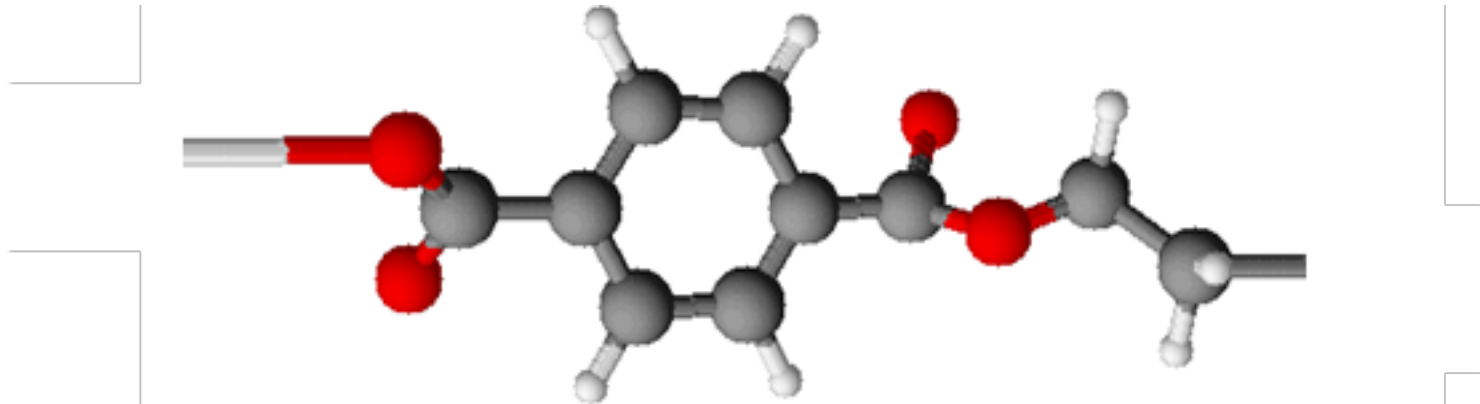
Three main reasons... 1) Price, 2) Price and 3) Price



How can Polyester be so cheap?

Three main reasons...

Reason #1: One of its key raw materials is free, and it has a lot of it:



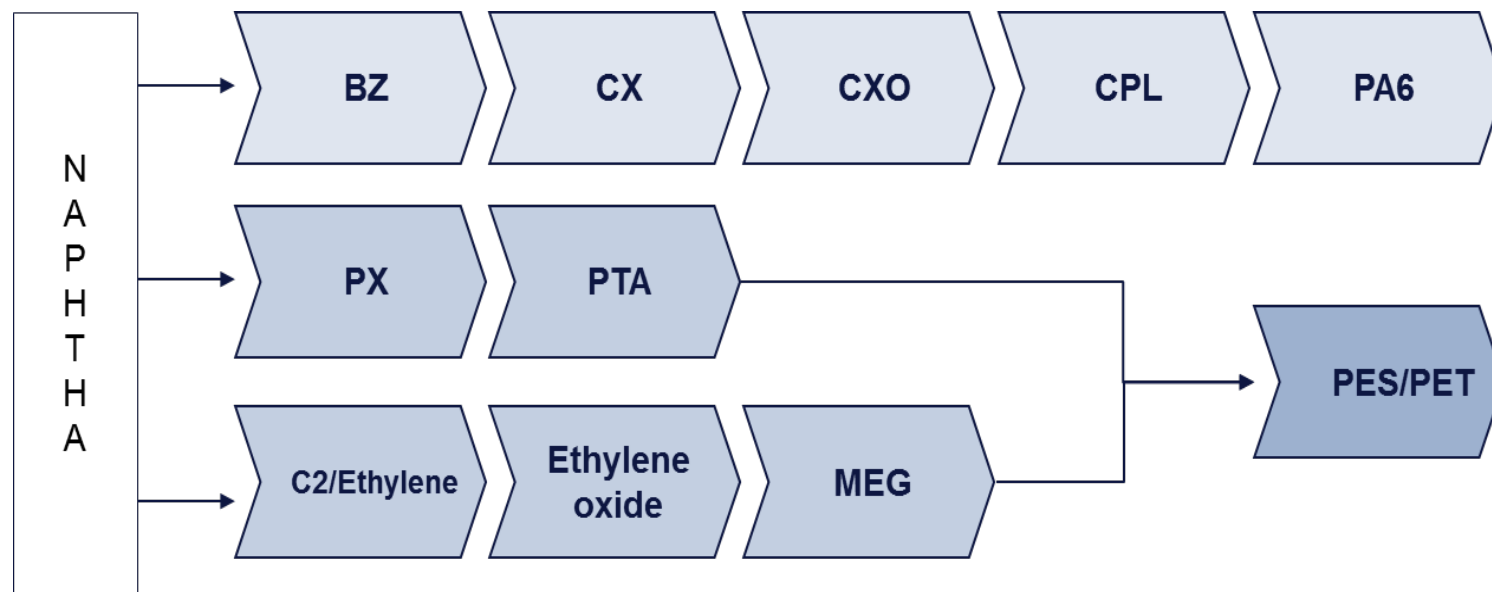
Molecular weight of a “Polyester unit” = 210g/mol, of which 38% is oxygen

For context, Nylon6 = 14%; Polypropylene = 0%; Acrylic = 0%

How can Polyester be so cheap?

Three main reasons...

Reason #2: It has simple and efficient chemistry



A typical chemical process “loses” about 10% of feedstock weight during the transformation:

- 1 Consecutive Process = 90%
- 2 Consecutive Processes = 81%
- 3 Consecutive Processes = 73%

How can Polyester be so cheap?

Three main reasons...

Reason #3: In 2017, 37% of polyester polymer production went into something different.



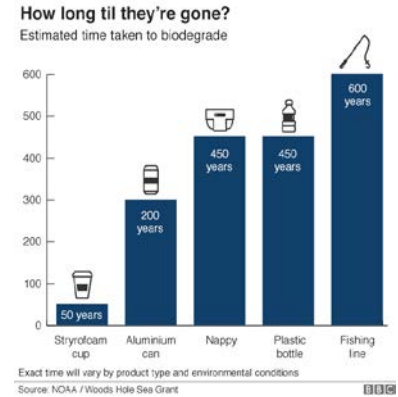
This “significant other market” gives polyester scale, which gives it economies:

Theoretical Example:

| Capacity (ktpa) | Capital Cost (\$ million) | Investment Intensity (\$/mt) |
|-----------------|---------------------------|------------------------------|
| 400 | 400 | 1000 |
| 800 | 640 | 800 |
| 1200 | 817 | 681 |

This “significant other market” also gives the polyester fibre industry a unique source of even cheaper raw materials, via recycling of bottles.

But there is a problem....or rather two....

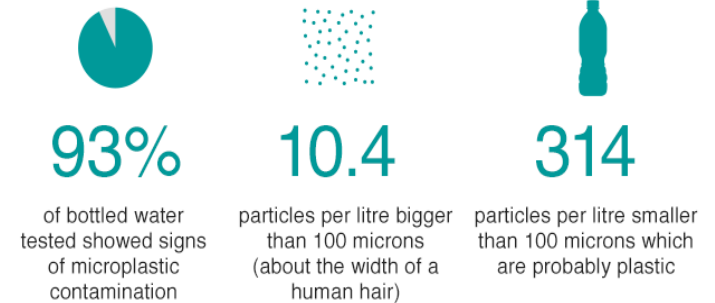


CONSIDERED SOURCES

YEARLY WORLD CONSUMPTION AND TYPE OF LOSS

| SOURCES | WORLD CONSUMPTION <small>KTONS / YEAR OF PLASTIC</small> | INTENTIONAL LOSS | REFERENCES |
|--|---|------------------|----------------------------------|
|  PLASTIC PELLETS | 257,000 | NO | Plastics Europe (2007) |
|  SYNTHETIC TEXTILES | 42,534 | NO | FAO/ICAC (2013) |
|  TYRES | 6,431 | NO | ETRma (2010) |
|  ROAD MARKINGS | 588 | NO | Grand View Research, Inc. (2016) |
|  MARINE COATINGS | 452 | NO | Coatings world (2012) |
|  PERSONAL CARE PRODUCTS | 42 | YES | Leslie, H.A. (2015) |

Testing for microplastics in bottled water

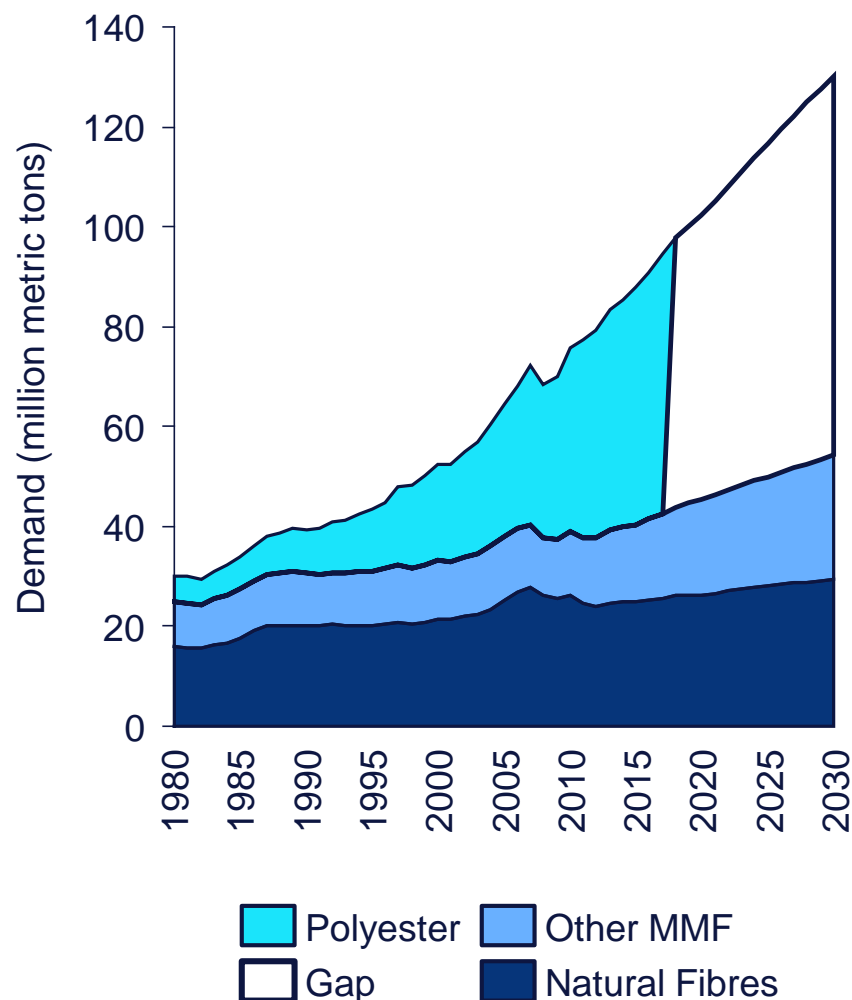


Source: Orb Media/State University of New York Fredonia



What does this mean?

If there is a problem with Polyester, there is a problem for global fibres supply...



- If there is a problem with polyester, the global fibres supply / demand balance will not close.
- This leads to two possible alternatives:
 - Different Demand
 - » Increasing focus on sustainability?
 - » End of *Fast-Fashion*?
 - » More quality, less quantity?
 - Different Supply
 - » Different fibres?
 - » Different polymers?
 - » Increased recycling / closed loops?
 - » Renting clothes?

Closing Remarks

- Global demand for fibres has grown from 30 mtpa in 1980 to 98 mtpa in 2018. We expect demand to continue to grow reaching 130 mtpa by 2030.
- The vast majority of this historical demand growth has been met by polyester, and the majority of future growth is also expected to be met by polyester.
- The increased use and consumption of polyester (in both packaging and fibres) is creating increasing pollution in sea and on land. Fears are growing about the adverse environmental and health effects of this pollution.
- There is an increasing probability that the use of polyester will be subject to some form of regulation in future.
- For the fibres industry there is no obvious alternative to polyester, so there is no obvious “silver-bullet” solution to this dilemma.
- The road to this future will present opportunities to reshuffle the current industry order. There will be winners and losers. This disruption will have economic, geographical, technical, raw material, supply chain and brand dimensions.
- Whatever the future is, it will undoubtedly be more expensive.

What do these 4 pictures have in common?



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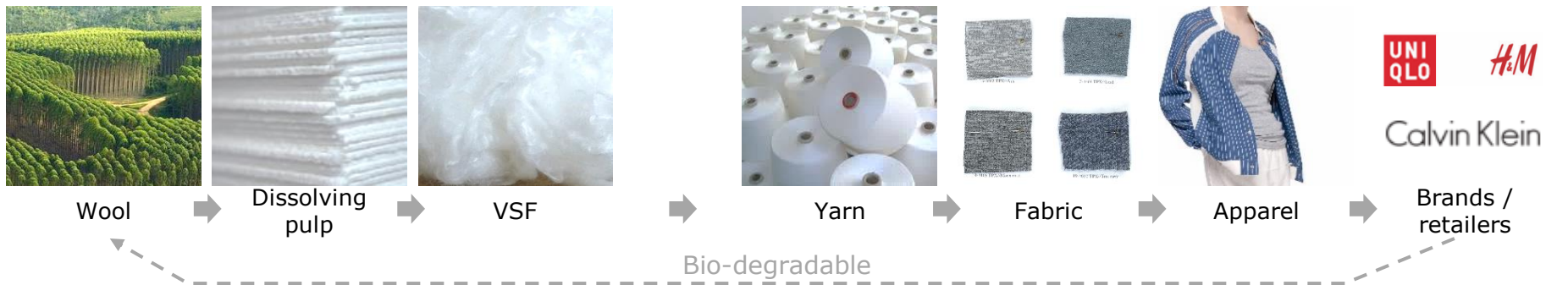
Sustainable Development of Viscose via Collaboration

7 September 2018
By Xin Feng



Viscose Staple Fibre

Downstream value chain



Further Downstream

Sateri – A Global Viscose Leader



Sateri is a global leader in viscose rayon – scale, quality and sustainability

- 800,000 tonnes per annum
- Largest producer in China
- 3rd largest producer in the world



Our Sustainability Approach



| Policies / International Standards / Certifications | Stakeholder Engagement / Partnerships | Transparency & Accountability |
|--|---|---|
| <ul style="list-style-type: none"> • Sustainability Policy • Sourcing Policy • PEFC Chain-of-Custody Certification • Oeko-Tex STANDARD 100 • STeP by Oeko Tex | <ul style="list-style-type: none"> • Institute of Public & Environmental Affairs (IPE) • ZDHC • Changing Markets Foundation • Textile Exchange • Collaboration for Sustainable Development of Viscose (CV) | <ul style="list-style-type: none"> • Supplier Mapping • Sustainability Reports • Grievance Procedure |



SUSTAINABILITY POLICY

Responsible Sourcing

- Guided by Pulp Sourcing Policy – dissolving woodpulp (DWP) source not from High Conservation Value (HCV) and High Carbon Stock (HCS) Forests; respects indigenous community rights through Free Prior and Informed Consent (FPIC)
- High traceability as majority DWP is sourced from 2 major suppliers
- Sustainable raw materials – more than 95% of DWP used sustainably-managed plantations and forests; target for 100% certified pulp by 2020.
- All Sateri viscose mills are PEFC-CoC certified



Responsible Manufacturing

- STeP by OEKO-TEX® certified – achieved highest ranking of level three in the assessment scoring for exemplary implementation of best manufacturing practices in quality management, environmental performance and social responsibility



Responsible Product

- USDA Certified Biobased Product – 100% bio-based; natural & biodegradable
- STANDARD 100 certified - Free from any harmful substances and complies with European standards
- MADE-IN-GREEN certified - manufactured by using environmentally friendly processes and under safe and socially responsible working conditions.





Supplier Mapping

- Sateri's dissolving woodpulp suppliers are mapped and published on website

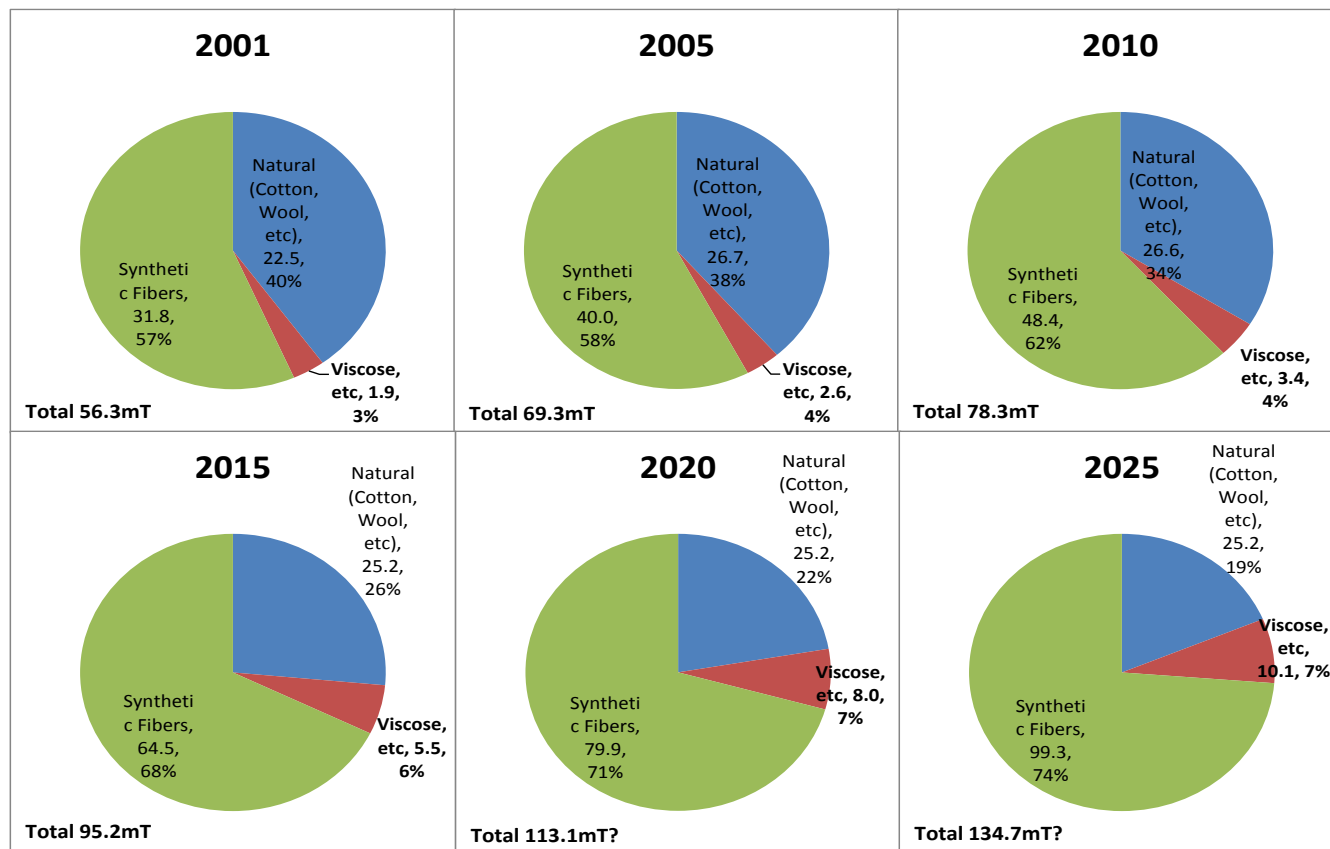
Grievance Procedure

- An avenue for any stakeholder to raise issues about our policies, operations and activities – and those of our suppliers– so we can take action to address their concerns, resolve grievances and improve our performance.

Sustainability Report

- Details stakeholder concerns, Sateri's environmental and social performance, achievements and targets

Viscose: strong growth potential



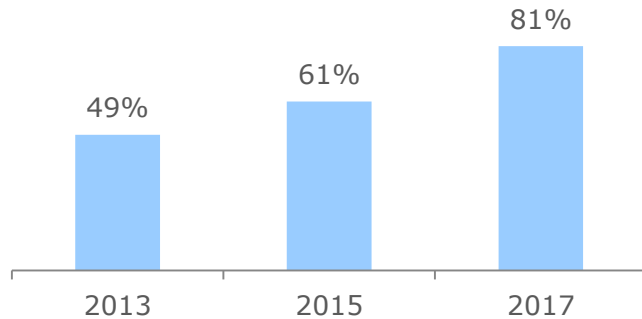
5-Yr CAGR

2005-10 2010-15 2015-20 2020-25

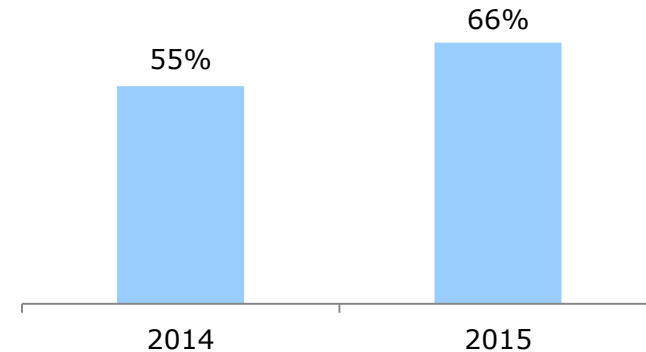
| | | | | |
|-----------------------------|-------|-------|------|------|
| Natural (Cotton, Wool, etc) | -0.1% | -1.1% | 0% | 0.0% |
| Viscose, etc | 5.7% | 10.2% | 7.7% | 4.9% |
| Synthetics | 3.9% | 5.9% | 4.4% | 4.4% |
| World Fiber Demand | 2.5% | 4.0% | 3.5% | 3.6% |

Source: Fiber Organon

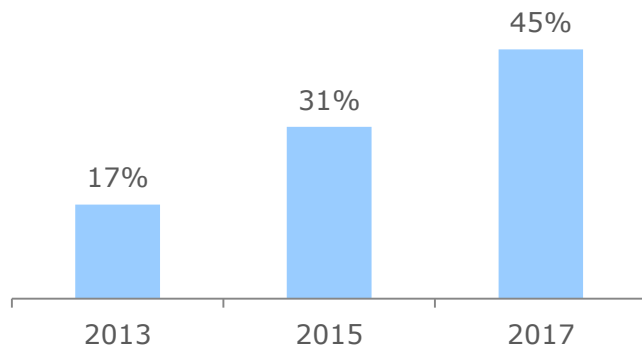
Brands that trace fabrics



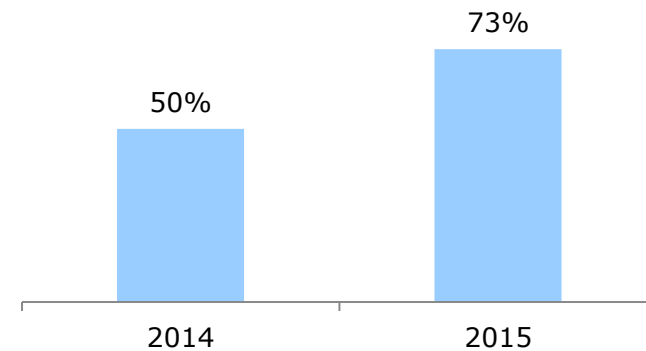
Consumer willingness to pay for sustainable brands



Brands that trace raw materials



Millennium's willingness to pay for sustainable brands



Source: Ethical Fashion Guide 2017; AC Nielsen 2015 (n = 30,000, 60 countries), Accenture 2014 (n = 30,000, 20 countries)

Current challenges

- Lack of understanding completeness by downstream / brands and consumers
- Various standards and certifications, each with difference focuses
- Different stakeholders
- Culture gaps

Our target

- Complete and easy-to-understand communication through the value chain
- One benchmark system, combining and harmonizing existing standards
- A pan-industry self-governing alliance, global scope, open and transparent

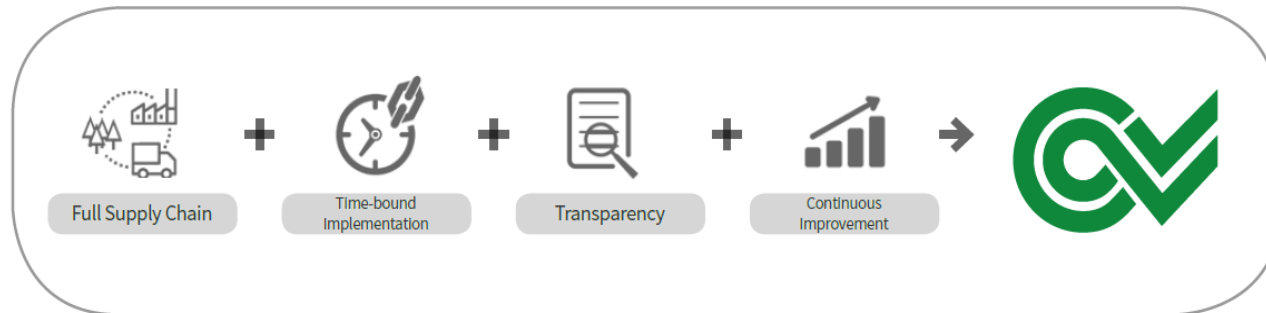


No single company can succeed without collaboration
among the whole system

CV for sustainable development of viscose

- A platform to achieve sustainable viscose and help their customers deliver on their sustainability commitments. This industry-led initiative will see its members adopt a much-needed sustainability roadmap for the viscose industry
- Officially launched on 15 March 2018; currently has 13 members: 11 producers who collectively represent over 50% of the global viscose production capacity, and 2 trade associations.
- 3-year implementation roadmap to ensure compliance to international standards and best practices

4 Key Attributes of CV Roadmap



Associated standards and Best Practices



 COLLABORATION FOR SUSTAINABLE DEVELOPMENT OF VISCOSE



CCFA



CCTA



Tangshan Sanyou



Sateri



Xinxiang



Jilin



Innovative by nature

Lenzing (Nanjing)



Grace



Yamei



Yinying



Helon

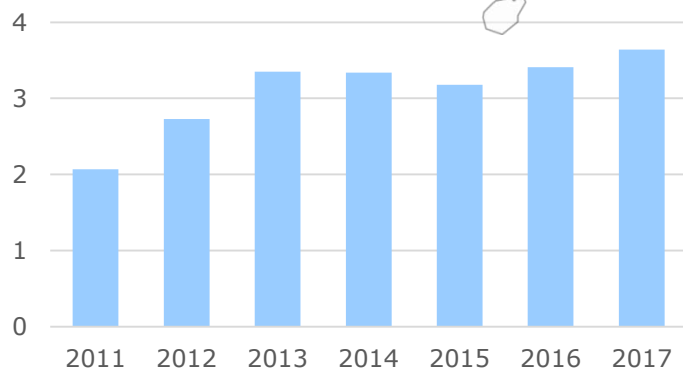
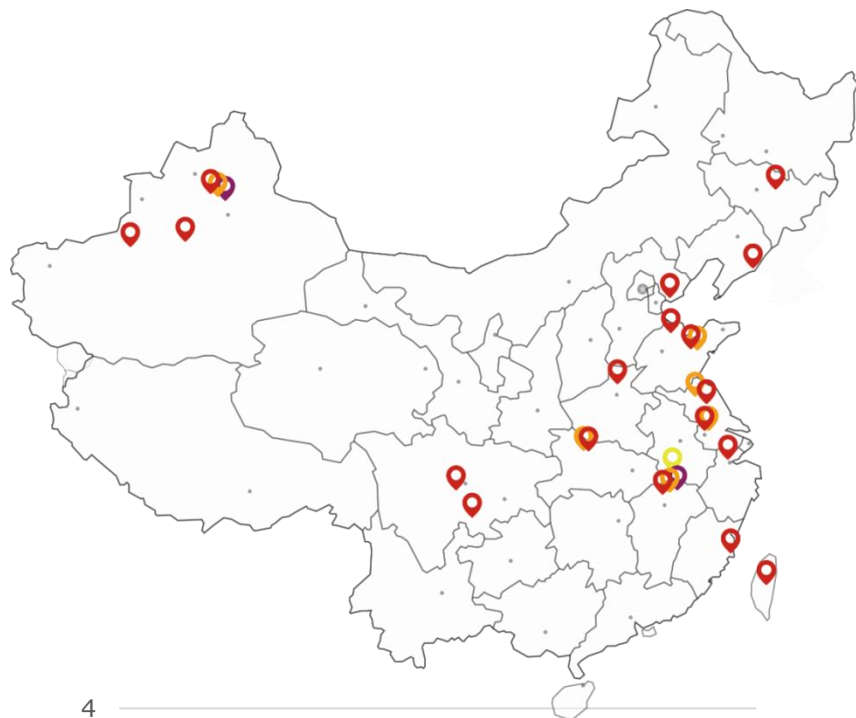


Aoyang



Zhejiang Fulida

China – viscose capacity and footprint



| Footprint | 2005 | 2010 | 2015 | Chg |
|--------------------------|-------|-------|-------|------|
| Total energy (KgCE / mT) | 1,682 | 1,300 | 1,000 | -41% |
| Electricity (kWh / mT) | 1,451 | 1,100 | 1,000 | -31% |
| Coal (KgCE / mT) | 1,502 | 1,165 | 877 | -42% |
| Water consumption | 119 | 95 | 65 | -45% |

| Effluents | 2005 | 2010 | 2015 | Chg |
|---------------------------|------|------|------|------|
| Waste water (mT / mT) | 98 | 83 | 58 | -41% |
| CS ₂ (kg / mT) | 102 | 35 | 14 | -86% |
| H ₂ S (kg/ mT) | 44 | 15 | 5 | -89% |
| Total sulfur recovery % | 27 | 75 | 85 | 215% |

Source: Ethical Fashion Guide 2017; AC Nielson 2015 (n = 30,000, 60 countries), Accenture 2014 (n = 30,000, 20 countries)

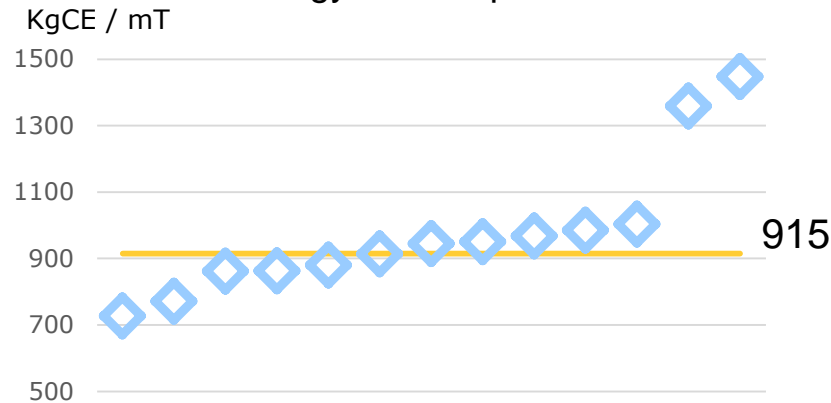
| | | Scope of requirements | | Basic requirements (2018.1-2019.6) | Advanced requirements (2019.7-2020.12) |
|---------------------|--|-----------------------|---------|---|--|
| | | Plant | Product | | |
| Raw material | Source | | √ | FSC® / PEFC™ certified pulp / control wood | FSC® / PEFC™ certified pulp / control wood PLUS Additional measurements to lower risk with HCV and HCS |
| | Traceability | √ | √ | FSC® / PEFC™ COC | FSC® / PEFC™ COC |
| | Legality | √ | √ | Full legal compliance | Full legal compliance |
| Production | Viscose industry guideline (2017) | √ | √ | Pass | Pass |
| | Cleaner Production Standards for Viscose | √ | √ | Grade III | Grade II / I |
| | ZDHC | √ | √ | Waste water: meet ZDHC guideline (foundational) | Waste water: meet ZDHC guideline plus MRSL Sludge: meet ZDHC guideline |
| | OEKO-TEX STeP | √ | √ | Level 1 | STeP Level 2 OR |
| | Higg Index (FEM 3.0) | √ | √ | Appraisal and submission | Higg Index defined improvement plus SAI / BSCI |
| | SAI or BSCI | √ | √ | ----- | |
| Product | OEKO-TEX STANDARD 100 | | √ | Certified | Certified |
| | GB/T 14463-2008 | √ | √ | Pass | Pass |

The CV Roadmap – measurable targets

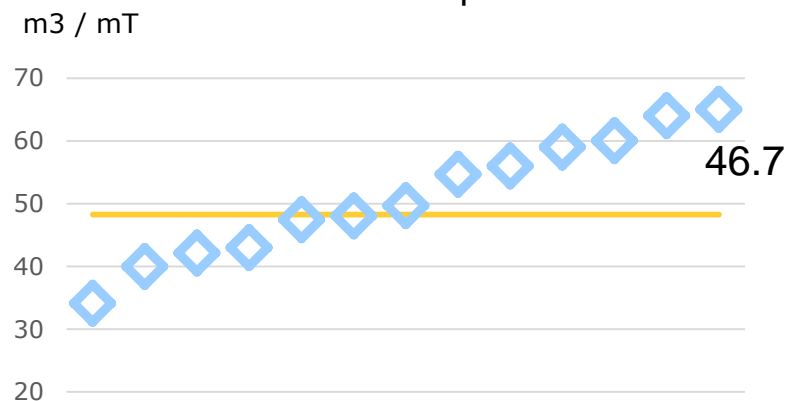
Current performance

Target performance

Energy consumption



Water consumption



| | Average | Minimal |
|---------------------------|------------------|---------|
| Total energy (KgCE / mT) | ≤900 | ≤950 |
| Fresh water (m3 / mT) | ≤45 | ≤55 |
| Total sulfur recovery (%) | ≥92 | ≥89 |
| Na2SO4 recovery (%) | ≥65 | ≥55 |
| CS2 use (kg / mT) | ≤60 | ≤70 |
| Waste water COD | Legal compliance | |
| Sludge | Legal compliance | |

- Total energy consumption reduction by 10%
- fresh water consumption reduction by 31%
- total sulfur recovery increase by 7%

Stakeholder engagement



Fashion and quality at the best price in a sustainable way.

Control Union, H&M Launch Open Platform to Improve Sourcing, Transparency for Apparel Industry
by Sustainable Brands September 14, 2017



Image credit: Fancyorave

Related: [Supply Chain](#), [Marketing and Comms](#), [HM](#), [Fashion & Apparel](#), [Textiles/Fashion/Apparel](#)

Control Union, a global network of inspection operations and dedicated laboratories, in partnership with **H&M** has created a new tool to help the apparel industry meet its commitments to supply chain transparency and responsible sourcing. A unique supply chain traceability and data service, **CONNECTED** is designed specifically for apparel industry supply chains that are complex, distributed over several tiers and countries.

The new program provides companies with full visibility over their entire supply chains. It also collects a variety of data, helping them to assess the risks and their impact on communities and the environment. Initial trainings have already been rolled out within a select group of H&M's viscose suppliers.

Supplier engagement and support is one of the key priorities of CONNECTED. To ensure that participants remain committed, dedicated support centers have been established in all producing regions. A local CONNECTED representative is made available to suppliers

“To insure we are excluding all fiber from ancient and endangered forests endangered species habitat and illegally logged sources we will build traceability of our cellulose-based fabric supply chains”.



NEW GOAL: 100% recycled or other sustainably sourced materials by 2030



THANK YOU !

Question and answer session.