

# TEXDATA

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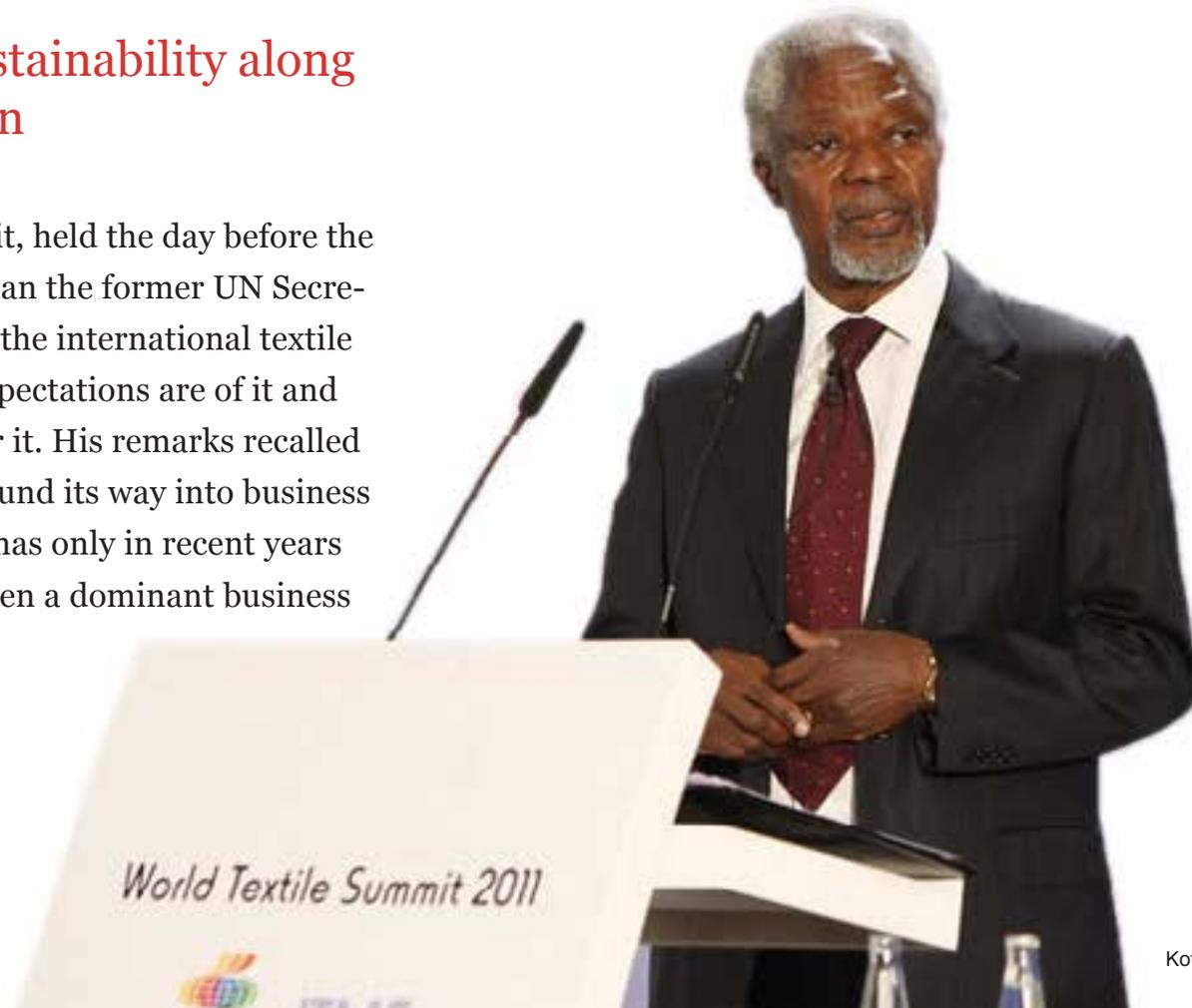
Top story

# Will the textile industry change the world?

The road to more sustainability along the textile value chain

**A**t the World Textile Summit, held the day before the ITMA in Barcelona, no less than the former UN Secretary-General Kofi Annan told the international textile industry what his personal expectations are of it and what future he would wish for it. His remarks recalled a keyword that, although it found its way into business vocabulary 25–30 years ago, has only in recent years become a major trend, and even a dominant business objective: *sustainability*.

by Oliver Schmidt



Kofi Annan

# e-save

comprehensive efficiency

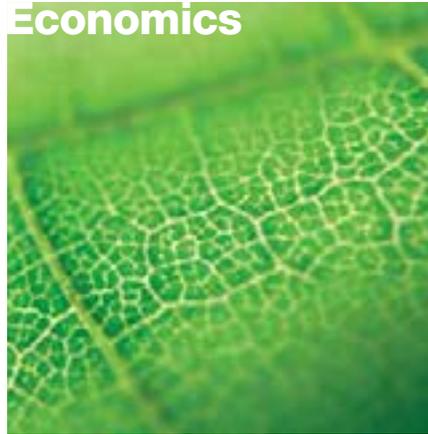
Oerlikon Textile started to establish e-save – a green label, originally created to brand components and machinery with a significantly reduced energy consumption – successfully back in 2004. In the last few years e-save has become a hallmark for com-

prehensive efficiency. It underlines Oerlikon Textile's technological excellence for economic welfare as well as for a sustainable management of limited resources. Oerlikon Textile's innovations are developed with the following four e-save aspects in mind:

## Energy



## Economics



## Environment



## Ergonomics



To learn more about e-save visit us at  
[www.e-save.oerlikontextile.com](http://www.e-save.oerlikontextile.com)

innovation  
has a name  
**oerlikon**

At the World Textile Summit, held the day before the ITMA in Barcelona, no less than the former UN Secretary-General Kofi Annan told the international textile industry what his personal expectations are of it and what future he would wish for it. His remarks recalled a keyword that, although it found its way into business vocabulary 25–30 years ago, has only in recent years become a major trend, and even a dominant business objective: sustainability.

The term ‚sustainability‘, which once referred more to the ROI of a company’s investments or the long-term development of revenue, is now

**„If the global textile industry really wants more sustainability and implements its efforts earnestly in order to achieve this goal, it can, as the foremost global industry, change the world.“**

Mr. Kofi Annan, WTS Barcelona, 2011

seen generally as development that is positive for the world — which takes into consideration and interlinks aspects relating to environmental protection, social justice, and the economy. Sustainability dates back in this sense to the Definition of the Brundtland Commission of the United Nations on March 20, 1987, which defined sustainable development as follows:

“sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Annan’s assessment of the textile industry’s record on sustainability was not initially favorable. He addressed that which is generally acknowledged. The very high rate of pesticide use in worldwide cotton production. The high use of chemicals and water in the manufacturing processes. And wages that in some parts of the world are not sufficient to „feed“ a family. But he did not stop twisting the knife there; he had come to bring sustainability to his cause: To praise initiatives that are now underway, to determine the correct direction, and to speak of chances.

Annan sees sustainability as the most important topic of our time, and for him the textile industry has a huge opportunity to change the world with a credible and lasting sustainability strategy. He links the reason for this primarily to the industry’s international nature. He sees no other industry that makes up a significant proportion of gross domestic product in so many countries across the world and that therefore has the opportunity to bring change in terms of sustainability to so many countries and to anchor this change in so many societies.

Is Annan right to place such a high value on sustainability for companies, and is the textile industry, with its sustainability efforts, really on the path along the value chain to bringing about huge worldwide changes? We shall examine these questions and look at the status of sustainability in the industry, as well as the industry's efforts and initiatives. Our examination will take as a background that the textile machinery industry – with its machines, an essential factor for the sustainability process along the textile value chain – recently had the opportunity at the ITMA in Barcelona to present its vision of sustainability in the form of innovation.

## The rising demand for sustainability

But, first, we will turn once again to sustainability itself. Sustainability is an essential issue of our time, not only recently, and one that companies must actively engage with if they are to survive to see the markets of tomorrow. It has taken a process lasting many years to get to this stage. Originally, ensuring sustainable development was more the task of states and governments. But globalization caused a drop in the ability of nations and politicians to realize their population's wish or demand for more sustainability, since companies were constantly becoming more international and individual states' rules and requirements were easy to bypass by relocating production facilities. Countries with lax environmental guidelines and controls, and the lowest wages, became increasingly attractive in terms of profitability.

But with the attraction grew resistance. Companies that acted in an all-too-capitalist and ruthless manner were met with hostility and denounced by activists and environmental organizations. Effective media campaigns caught the attention of mainstream society and brought about widespread resistance. Resistance that forced the companies to change course and to rethink their long-term approach – and demonstrated to the consumer the influence they were able to exert. For example, through the engagement of Greenpeace, the customer boycott at gas stations forced the Shell group in 1995 not simply to sink the „Brent Spar“ drilling platform in the North Sea, but to scrap it according to the rules. In the U.S.A., film-maker Michael Moore declared war on the gun lobby at the end of the 90s and, through PR campaigns and demonstrations, achieved results including the store chain K-Mart removing ammunition from its shelves, since cartridges it sold were used in the Columbine massacre. Moore's books and movies reached an audience of millions – mostly intellectual mentors that carried his ideas of a better society further.

These are just a few examples of the many, and the textile industry also played host to a continuing series of scandals involving child labor, starvation wages, inhumane piecework, neglect of environmental protection and occupational safety (by chemical adulteration, for example), cancer-causing soft toys for children, and a long list of other transgressions that lead to charges being brought against companies and attacks on their products – and which had a negative effect on sales figures. Companies needed to explain themselves, and outrages became a serious economic threat – especially for corporations that think and do business in terms of quarterly figures.

In addition to the sensitization of consumers, the consensus among economists, politicians, and intellectuals was becoming ever greater that things could not continue in this fashion. The sword of Damocles of impending climate catastrophe had finally shaken the world into action, allowing wide scope for environmental protection and thus sustainability. In the same way, the demand for sustainability reached the broad mass of the people. Personalities such as the United States presidential candidate Al Gore used their popularity to accomplish worldwide educational work on the importance of sustainable development. Actors, musicians, and artists support initiatives and products based on a positive ethic and motivate their fans to follow them.

Additionally, the political efforts at the G8 and G20 summits and Kyoto, and most recently the worldwide economic crash, as well as Fukushima, have all further pushed the importance of sustainability.

Kofi Annan is right — one would scarcely have thought otherwise. Today, sustainability is a central aim of companies, to secure their market share in the short term and their own survival in the long term.

It can be said, albeit radically, that companies must now free their business model and their products from any form of exploitation of nature/the

environment, people, and animals in order to fall in line with the market requirements of the future. Companies that fail to master this task put themselves at great risk of damaging their brand and increasingly losing relevance. The consumer demands products that follow the guiding principles of sustainability and companies that not only strive for economic profit, but that assume responsibility for nature and society.

„Deep in the Internet, the products are being discussed, and purchasing decisions are being made.“

## The modified customer

Today's enlightened and well-connected customers are no longer prepared to tolerate profits that are derived by causing harm to people or the environment. Instead they demand intelligent, smart solutions that burden people and the environment to the least extent possible.

A manufacturing process that preserves resources, combined with the best recycling methods, can be a very simple formula for sustainability.

The old ways of silence and secrecy are no longer in vogue. The times have changed and so have consumers. They are less ready to believe — they want to know the facts. They demand proof that the manufacturing process is environmentally friendly, is energy efficient, observes occupational safety,

and pays reasonable wages. Indeed, that it is a sustainable manufacturing process. So they inform themselves, ask questions, and want to discuss problems and rumors.

The customers of today are, to a large extent, socially networked between themselves and with the companies that have already grasped that long-term silence will no longer be valuable. Deep in the Internet, the products are being discussed, and purchasing decisions are being made.

Customers are happy to involve companies in this process, but if necessary they will proceed without them. This new form of the buying process and customer communications is changing the markets and giving rise to both risks and opportunities.

## New players and a new approach

Opportunities that are already being used. Outside of the mainstream arose small but nimble niche players whose products' USP was based on sustainability. They have already successfully shown how the entire textile supply chain can be freed of environmental misdeeds and the companies involved can take on social responsibility. One example is the German fashion label Armedangels. Its „sustainable“ clothing is far removed from the eco-clothing once aimed at hippies, dropouts, and „greens“. With its sustainable business concept, it was awarded the renowned Newcomer prize by the German „Wirtschaftswoche“ business magazine. Or the US firm Earthtec, which appeals to its customers with the slogan „Each time you purchase one of our organic styles, you are helping to make a cleaner, greener world“. These arguments strike a strong chord and are sure, in the long term, to win people over and achieve significant market share. Earthtec sees itself as a developer of sustainable lifestyle apparel made from



<http://www.armedangels.de>



<http://www.earthtec.com>



<http://www.kami-organic.com>



<http://www.pantstopoverty.com>

cutting-edge recycled or renewable fabrics such as recycled PET (plastic water bottles), organic cotton, and natural wool. Also worthy of mention are France's KamiOrganic, England's Pants to Poverty, Sweden's Nudie Jeans, Canada's One Leaf Creations, and Switzerland's Royal Blush. These firms all have their use of „organic cotton“ in common.

The Swiss firm bluesign® has very successfully demonstrated an entirely different approach to economically exploiting the issue of sustainability. Bluesign describes itself as follows: “The declared objective of the independent bluesign® standard is to put a reliable and proactive tool at the disposal of the entire textile production chain — from raw material and component suppliers who manufacture e.g. yarns, dyes and additives, to textile manufacturers, to retailer and brand companies, to consumers.” Already since the year 2000, Bluesign has been working on designing the textile value chain to be more sustainable and is providing

„Each time you purchase one of our organic styles, you are helping to make a cleaner, greener world“

(Earthtec)

textile firms with tools and advice to help them revise their processes in the spirit of sustainability and to make decisive changes. The bluesign® standard has been implemented over the years by various world-leading textile manufacturers — and many renowned brands in the fashion and sports clothing industries rely on bluesign®, such as Patagonia, MEC, The North Face, VAUDE, Helly Hansen, Haglöfs, Eileen Fisher, REI, Deuter, and Edelrid. Furthermore, chemical industry companies and textile machinery manufacturers such as Huntsman, Clariant, DyStar, CHT, Mahlo, and Benninger support the standard as bluesign® supporters. In January 2012, bluesign was granted a patent on its products bluetool and bluefinder.



<http://www.bluesign.com>



<http://www.global-standard.org>



<http://www.trancllo.com>



<http://www.newlifebymiroglio.com>

A long line of designers have also successfully treaded the path of sustainability — and therefore possibly the most important members of all in the textile value chain. This is because sustainable manufacture requires consideration of sustainable production options — with regard to materials, choice of textiles, and colors — at the design stage. In this respect, the „Portland Fashion Week“ gave a widely acclaimed boost in 2005 by featuring sustainable designers and apparel in its program. Since then, sustainable designers have been an integral part of the program, with designers and labels such as Anita Kealey, Anna Cohen, Avni, and Ethos Paris showing off their collections. On the subject of sustainable design, Maria C. Thiry recently wrote about sustainability in a report published in AATTC Review: “A new paradigm is being developed for the functionality and style of textiles and apparel that companies are willing to make and offer to the consumer. In this new paradigm, designers are the critical first step.” Sure to support this statement is the National Association of Sustainable Fashion Designers, a non-profit organization that has set

## „In this new paradigm, designers are the critical first step.“

(Maria C. Thiry in AATTC Reviews 2011)

itself the goal of enlisting a new generation of fashion leaders that support sustainable practices and lead projects that create positive social & environmental change. Currently, the sustainable fashion designers want to support Fair Trade USA in extending the newly created Fair Trade Apparel & Linens certification. In September last year, Fair Trade USA reported over 10,000 certified products and a sales growth of 63%.

These are just some of the countless examples demonstrating that changed requirements — particularly in the field of sustainability — give rise to new market niches and entire new markets, served by successful, growing players.



<http://portlandfashionweek.net>



<http://www.sustainabledesigners.org>



<http://signalsustainability.com>



<http://www.fairtradeusa.org>

These developments were also accompanied by initiatives of states and governments. The European Commission has made sustainability a central issue for the Europe 2020 growth strategy.

And the established corporations? Without a comprehensive process of rethinking, they not only have no opportunities in these new markets, but are also exposed to serious risks. Some large companies have long since created the position of Chief Compliance Officer on their boards; these officers are responsible for ensuring that the company observes all guidelines as precisely as possible. Both legal requirements and the specifications of their own model. Within the context of risk management, any damage to the brand must be averted under any circumstances. The brand is sacred, elevated by McKinsey and others to the value that makes the difference in an increasingly interchangeable society. Because what attitude to life would this sentence convey: Enjoy brown lemonade.

## Sustainability vs. “green washing”

Therefore sustainability, as it sometimes seems today, is not a discovery by do-gooders in boardrooms at large companies, but rather a stern and growing customer requirement of the modern day — and one that is being given ever more emphasis. We currently find ourselves in a transition period, where general social or ecological engagement may be enough for companies to protect their brands and products.

A good example here is the German brewery Krombacher, which is saving the rainforest by planting a sapling for each crate of beer it sells (annually, rainforest preservation makes up 0.01% of the deforestation area). This compensatory engagement, whereby the focus is placed more on marketing the sustainability efforts than on sustainability in the company itself, and which is also referred to as greenwashing by sustainability experts such as Adam Werbach, author of the book „Strategy for Sustainability: A Business Manifesto“, will soon be a thing of the past.

## We update our „guidelines for environmental claims“, in order to counteract the tsunami of green marketing claims

(James Kohm, associate director of FTC's enforcement division, in April 2011)

Despite a boom in recent years, there is little future for greenwashing in advertising, whereby companies give their image a green coat of paint using clever advertising ideas or by highlighting secondary activities, and whereby the environmental benefits are portrayed in the advertisement as being far greater than they are in reality. According to the environmental marketing and consulting firm TerraChoice, which has published an annual greenwashing report since 2007, 2,219 products made green claims

in 2009 (up 79% compared to 2007) and the rate of green advertising in major magazines between 2006 and 2009 mushroomed from about 3.5% of all ads to just over 10%. In order to shore up consumer protection in the face of this, the U.S.A.'s Federal Trade Commission (FTC) decided to update its „guidelines for environmental claims“, in order to counteract the tsunami of green marketing claims, said James Kohm, associate director of FTC's enforcement division, in April 2011 to USA Today. The guides, first issued in 1992, were last updated in 1998.

In the medium term, therefore, they are digging deep — into the processes of the company itself. From product design to disposal or — better — recycling.

## Nike's Environmental Apparel Design Tool

Sporting- goods giant Nike, as a trendy youth brand, per se, with its finger on the pulse, and having been met in the past with hostilities relating to environmental misdeeds in its supply chain, was one of the first companies to understand the new requirements. Already in the early 90s, by its own account, the company established a „sustainability“ group, designed to examine the question of how a company with a turnover of billions can run its production differently — more sustainably. That this sustainability group — if it ever existed — was only assigned greater importance in recent years is evident from the fact that Nike had a firm place on the scandals list for the last 20 years. At Nike today, however, everything is different. This is already apparent on the website [nikebiz.com](http://nikebiz.com). Here, the first thing the visitor sees in December 2011 was a message from Mark Parker, CEO



<http://www.strategyforsustainability.com>



<http://www.ecolabelindex.com>



<http://stopgreenwash.org>



<http://sinsofgreenwashing.org>

of Nike: „Sustainability is our generation’s defining issue.“ This proposition links with Nike’s new objective of integrated sustainability. By its own account, the corporation carried out an analysis of the entire company in 2007–2009 and developed solutions for how all business processes could be modified for sustainable development. As a result, a new department, Nike SB&I, was created, which focuses on key business priorities — sustainable products, sustainable manufacturing, and sustainable marketplaces.

## „Sustainability is our generations definig issue“

(Mark Parker, CEO Nike)

The corporation defines the strategy for the new heavyweight department as follows: „Our vision for SB&I is to enable NIKE, Inc. and our consumers to thrive in a sustainable economy, one where people, planet and profit are in balance.“ The realization of these lofty goals is, Nike says, to be achieved by the following means:

- Innovate to deliver enterprise-level sustainability solutions
- Integrate sustainability into the heart of the NIKE, Inc. business model
- Mobilize key constituents (civil society, employees, consumers, government and industry) to partner in scaling solutions

The words have already been followed by actions. In November 2010, Nike presented to the world a new tool for improved sustainability: the Environmental Apparel Design Tool. Building on an internal tool, Nike’s Considered Index (the company’s internal program used in developing innovations such as the 2010 World Cup soccer uniforms made completely from recycled polyester), designers can design products in a more sustainable way by using a web application (a type of online software) to input,

benchmark, and modify materials and processes that are individually pre-evaluated, in order to improve the resulting sustainability index. “This tool is about making it simple for designers to make the most sustainable choices right at the start of the product creation process,” said Hannah Jones, Nike’s vice president of sustainable innovation, in a news release.

Almost more revolutionary than the tool itself was Nike’s readiness to share the tool with everyone and to place it under an open source license, in order to give other firms and organizations the opportunity to analyze and improve their own sustainability, as well as to extend and improve the tool itself. This willingness to collaborate shows that Nike is taking sustainability seriously.

## Eco Working Group (EWG) of the Outdoor Industry Association

Nike's initiative was linked to another initiative that was crucial for the development of more sustainability: The Eco Working Group (EWG) of the Outdoor Industry Association. Established in 2007, the EWG examines the question of how ecological sustainability can be integrated into manufacturing processes relevant to the outdoor industry, with the aim of causing as little harm as possible to the environment. It was self-evident that outdoor companies would be a frontrunner in equipping the entire sector with a sustainability strategy, since one cannot credibly sell equipment to nature lovers if one's own industry is simultaneously damaging the experience they seek. Thus, the members of the EWG include notable outdoor companies and sporting-goods manufacturers but also other organizations that are active in the quest for more sustainability, such as Öko-Tex®, bluesign®, Signal, and the Sustainable Fashion Business Consortium (SFBC) from Hong Kong, which represents more than 30 members from the fashion, textiles, and textiles-chemistry sectors.

**“The Eco Index uses environmental guidelines, environmental performance indicators, and environmental footprint metrics to assess the impacts within six product life cycle stages”**

*(Eco Working Group (EWG) of the Outdoor Industry Association)*

In total the EWG consists of more than 100 outdoor businesses whose first accomplishment was collaboratively developing the industry's first environmental assessment tool: the Eco Index. The EWG describes the Eco Index as follows: “The Eco Index uses environmental guidelines, environmental performance indicators, and environmental footprint metrics to assess the impacts within six product life cycle stages: Materials; Packaging; Product Manufacturing and Assembly; Transport and Distribution; Use and Service; and End of Life. A comparative scoring system

at the indicator level provides standardized levels of achievement; a data capture tool at the metric level provides a means to collect quantitative data within seven critical “Lenses” (areas of impact): Land Use Intensity, Water, Waste, Biodiversity, Chemistry/Toxics – People, Chemistry/Toxics

– Environment, and Energy Use/Greenhouse Gas Emissions.” Designed from the start as a long-term and open project, the Eco Index follows the five principles: Collaboration, Open-Source Information, Transparency, Scalability, and Global Reach.

## „We have based our corporate philosophy on the principle of sustainability“

(Dr. Michael Otto, CEO and owner of the Otto Group)

With the Eco Index, an internal supply-chain tool for one industry was developed for the first time on a broad basis, which is of crucial significance for the further development of sustainability across the whole textile industry, because in 2009 the EWG became part of an even larger and more important group: the Sustainable Apparel Organisation.

Established in March 2011, the Sustainable Apparel Organisation has a member list that reads like a Who's Who of clothing, textile, and retail heavyweights from across the globe — joining forces to give the issue of sustainability the most power possible.

## Retailer und the Sustainable Apparel Index

The participation of the big retailers is no surprise, as sustainability has become an important issue for them too. Dr. Michael Otto, CEO and owner of the Otto Group, says: „Society can only function if everyone is prepared to contribute in accordance with their capabilities.

We have based our corporate philosophy on the principle of sustainability, and as such we combine commercial activity with the promotion of ecological and social goals.“ With retailers, however it remains hard to say to what extent economics is rooted in sustainability. Although, for example, Otto carries sustainable clothing, made using fair-trade natural cotton, in its product range, it also carries plenty of other clothing whose sustainable production process is unknown and thus seems at least dubious. Symbols in the style of washing instructions for the consumer, clearly indicating what the sustainable basis is for a piece of clothing, would open up the sustainability process. Raw materials, chemicals, water use, environmental pollution, social responsibility, and recyclability could be indicated on the label and the consumer could therefore base their buying decision on these criteria as well.

„Focus on B2B decision-making first with the expectation that consumer-facing scores will exist in the future“.

Sustainable Apparel Coalition (SAC)

Precisely these symbols, in the form of a consumer index, are found with the Sustainable Apparel Coalition (SAC)'s Sustainable Apparel Index, where the message is: „Focus on B2B decision-making first with the expectation that consumer-facing scores will exist in the future.“

The SAC was founded with the following aim: „Our vision is an apparel industry that produces no unnecessary environmental harm and has a positive impact on the people and communities associated with its activities.“

The development of the Sustainable Apparel Index is seen as a first major joint project, and in November 2011 a first analysis tool appeared that allows products to be evaluated in the form of an Excel spreadsheet. The results are not yet to be made accessible to consumers, but rather will initially influence B2B decisions. The Sustainable Apparel Index goes far further than Nike's Considered Index and even the Eco Index, as it evaluates the product from its creation, through the entire supply chain, right up to the recycling stage.



<http://www.nikebiz.com/responsibility/nikeenvironmentaldesigntool>



<http://www.ecoindexbeta.org>



<http://www.sfbc.org.hk>



<http://www.apparelcoalition.org>

## Impacts of the index

Although the tool's current version 1.0 still requires improvement in many areas, and in particular the operation, in the form of numerous Excel lists, remains complex and scarcely user-friendly, the clothing and textiles industry, despite all of the tool's weaknesses, now has the option to test and compare products in terms of sustainability. This quantum leap towards transparency might, in the medium term, send powerful tremors through all of the industries associated with the manufacturing and supply process, since it will bring the fight to the factors that damage a good index value.

„The new, open membership structure is currently planned for 2012“

(Sustainable Apparel Coalition)

The Sustainable Apparel Coalition says: “A common approach for measuring and evaluating sustainability performance is essential for driving a ‘race to the top’ in the apparel supply chain. Apparel retailers and brands can compare performance of upstream supply chain partners and those partners will have a single standard for measuring and reporting performance to their downstream customers.” They continue: “This Sustainable Apparel Index will help identify and drive improvements in energy, waste, water, and toxics in the supply chain and help reduce operating costs and risks.” The SAC’s aim is therefore clear. Long before the customer is eventually presented with an index, all of the processes will be overhauled, i.e.: At the point of the index’s introduction, only goods manufactured in an accordingly sustainable manner will be put on sale. Particularly for large retailers, this would be a logical and consistent step. A step, however, that could also lead to a huge recoil effect in the supply chains of some clothing manufacturers.

The ball is therefore in the court of the textile industry and their production partners, the textile machinery industry, and the textile chemicals industry. Economic competition will be enriched by the components of sustainability, and time is of the essence if one compares the speedy initial development of the index in just nine months with, for example, the slow development cycles of the textile machinery industry. Tackled properly, sustainability can become an engine of innovation and economic growth in the industries. Sluggish action or fear of too much transparency could, on the other hand, lead to uncertainty or bad decision-making.

## The role of textile machinery producers

Especially for the textile machinery industry, it would be disastrous if they do not actively involve themselves in designing the process for indexing a textile manufacturing process and are instead simply lumped with an externally developed system. The time has therefore come for the industry to urgently begin to evaluate production systems for their specific uses and to make it possible to compare them with one another. It goes without saying, especially in the textile production process, that the big value drivers are present for more sustainability, and that textile machinery manufacturers and the textile chemicals industry must therefore take action independently and develop their own criteria and options for more sustainability, before others do it for them and subject them to the corresponding requirements. In this spirit, it is to be welcomed that with Huntsman, a textile chemicals firm has recently joined the Sustainable Apparel Coalition and that other chemical firms such as BASF, Clariant, and DyStar, with their Chinese branches, are indirectly involved via the SFBC. With the opening of the SAC to supply-chain partners in 2012, textile machinery manufacturers should also perceive this opportunity.

It would be wrong, however, to assume that the deficiency of the major organizations implies inaction on the part of the textile machinery manufacturers. In recent years, the industry has brought about many innovations for improved energy efficiency, reduced water consumption, and reduced use of chemicals. Also with regard to transparency, machinery manufacturers have made promising first attempts via two of their representative lobbies – the ACIMIT and VDMA associations.

## ACIMIT's green label

Italy's ACIMIT presented its vision of transparency for more sustainability at the ITMA 2012 in Barcelona: ACIMIT's Sustainable technologies project, which is supported by 31 of 166 member firms (including MARZOLI, ITEMA, and COMEZ), who are also permitted to use the logo „Supplier of sustainable technologies“. At the center of the activities is the ACIMIT green label, a type of certificate issued by the manufacturer itself, providing quantitative statements on textile machinery's water, energy, and chemical use and CO<sub>2</sub> footprint, and which is attached directly to the certified machines. Manufacturers that have joined up with the Sustainable project must jointly sign a corresponding „Memorandum of understanding“ and „rigorous implementation regulation“ with ACIMIT and, in addition, guarantee the validity of the supplied data.

The project was started in 2007 as part of the Nu Wave Initiative (members include: ACIMIT, ATOK, VDMA, EURATEX, IVGT & ITA) and is primarily supposed to help SMEs to improve their machinery to give lower emissions and lower consumption. NU WAVE sees itself as being in accordance with the ManuTex initiative, founded by CEMATEX and EURATEX, which, under the leadership of the ITA (Institut für Textiltechnik of the RWTH Aachen), has the strategic aim of „supporting textile machinery SMEs in the design of a new generation of flexible and high-performance machines through a close cross-sectorial R&D collaboration between textile and textile machinery manufacturers at European level“.

“It's just the beginning!“

(ACIMIT's president Sandro Salmoiraghi on ITMA press conference 2011)

The project was promoted with EU resources from the Seventh Framework Programme (FP7) and accompanied by the consultant D'Appolonia. The ACIMIT members Flainox and Jaeggli-Meccanotessile Sr. were directly involved in the pilot. The result of the work and the basis of the green labeling is also an analysis tool that allows members to enter their data for each individual machine and determine whether it meets the conditions of the green label. In an information document, NU Wave defines the accessibility of the green label as follows:

“The output is a ‘Green Label’ that would be initially applied on the machinery produced by the associates of SME-AGs partners of the Nu-Wave project and possibly extended in the future to all other manufacturer users, as a reference.” It is currently only used by some ACIMIT member firms, which points to hasty development and a lack of consensus within CEMATEX.

It was important to the ACIMIT leaders to take action and in particular to put down a marker at the ITMA. „We are the first mover,“ said director Federico Pellegata proudly at the ITMA press conference for the joint initiative. To the question of whether it would not have been better to wait and to develop something jointly and Europe-wide within the CEMATEX framework, ACIMIT’s president Sandro Salmoiraghi paved the way for future development: „It’s just the beginning!“

Overall, the green label certainly leaves many questions unanswered, but it is gratifying in an era of announcement to make a start, to let actions speak and to establish facts. Facts that encourage others and are sure to contribute to a positive overall development – in the face of all sorts of criticism.

Criticism that need not be named, since coincidentally or by accident it is specified more precisely in the reports for the German VDMA association’s Blue Competence initiative.

## VDMA’s blue competence

With its sustainability initiative „Blue Competence“, the VDMA wants to take and maintain for the long term the role of technological leader in terms of sustainability issues. Dr. Darius Soßdorf, the initiative’s project leader, sees communication as a central matter for the initiative. In this spirit, the VDMA’s professional association for textile machinery did not present any results in the form of an index or label, but rather first published a forty-page information document at the time of the ITMA 2011.

**„The guide on energy efficiency shall help to make the discussion about efficiency criteria, CO<sub>2</sub> footprint and comparability more objective“**

*Thomas Waldmann, Managing Director of the VDMA Textile Machinery Association*

In addition, numerous members were canvassed (including Oerlikon, Truetzschler, Monforts, Karl Mayer, Lindauer Dornier, Brückner, Groz-Beckert, and Thies) that support the initiative as companies.

The VDMA does not see a label as a cure-all for measuring the energy efficiency of textile machinery, ostensibly because the textile producer has a significant effect on the values through its individual adjustment and production process.

In its information document, the VDMA clarifies this using numerous examples, whereby it examines relatively standardized processes such as the spinning preparation / carding or the yarn production / open-end spinning machine in terms of influential parameters. It demonstrates that for a textile machine as an entity, no generally applicable statements can be made with respect to energy efficiency or carbon footprint, since too many of these parameters significantly influence the consumption of resources in the production process, such as the raw materials used, the production environment, and the state of the components. For the process of yarn production, for example, it states: „Even through the choice of the fiber raw material quality, as well as the choice of the spinning and production parameters (operating point), the machine operator establishes significant proportions of the specific energy consumption in the yarn production process, which do not necessarily result from the requirements of the final article.“ It continues in its interim conclusion: „The examples clarify that there are many heterogeneous main variables that influence the energy efficiency and the combination of processes and process parameters is al-

most infinite. An influence on the adjustment of the parameters is exerted by the machine operators, the requirements of the textile product, the materials, the fiber supplier, and the machine manufacturer. The examples listed also show that the machine manufacturer's influence on the energy efficiency of the process is very limited.“

The VDMA therefore proposes that all parameters must first be determined, defined, and mapped in order to allow comparison between the specific individual areas of use. In particular, sensible machinery categories must initially be set up, and the energy consumption of a type of machine should only be determined on the basis of an agreed (defined) working process / operating point. Otherwise we will not be comparing like with like. In its outlook, the association announces that, in consultation with its member firms, it will examine „for which machinery groups standards with defined operating points for comparable energy-efficiency data should be created“.



<http://www.acimit.it/pub/E-sustainable1.htm>



<http://www.nu-wave.eu>



<http://www.manutex.eu>



<http://www.bluecompetence.net>

How correct the VDMA is in this respect — that the energy requirement of a machine cannot be stated generally — has already been confirmed by Dr. Marion Tobler-Rohr at the Swiss institute for textile machinery and the textile industry at the Swiss Federal Institute of Technology Zurich (ETH Zurich). Dr. Tobler-Rohr worked as a senior researcher at ETH Zurich, Switzerland from 1996 to 2007, examining the issues of sustainability and ecology in textile production and recently (August 2011) summarized her findings in „The Handbook of sustainable textile production“. In the year 2000, at the time of the appearance of chapters 1–3 of the BAT (Best Available Techniques) for textiles, a reference document of the European Integrated Pollution Prevention and Control (IPPC) directive on the environmental compatibility of textile production, she had already investigated various stated processes in collaboration with textile producers and had found that, in the spinning process, even just the fineness of the yarn produces different energy-consumption values. In her measurements, she determined on the same technical system of a ring spinning machine per kg of yarn 2.5 KWh with 40-tex yarn and 8 KWh with 10-tex yarn.

But if the power consumption of a machine is dependent on the material produced, how can a general energy-consumption value be quoted? The VDMA's approach seems, overall, very methodical and practical. Rather confusing, on the other hand, are the information document's repeated statements regarding complexity and the manufacturer's weak influence on energy efficiency and CO<sub>2</sub> emissions. These statements suggest that the producers are not really in a position to effect any changes. This would be regrettable. And possibly even incorrect, since other industries have met

the requirements of demonstrating sustainability, even though they faced a challenge of similar scale to that facing the textile industry today.

## Learning from other industries

For biodiesel, for example, proof was legally required that the life-cycle assessment of every single liter of the fuel additive was positive (EU Biofuel Sustainability Ordinance), in order to continue to receive economically vital tax-exempt status. The industry was left with no choice but to develop certification systems such as Redcert or ISCC and evaluate and document the biodiesel's route through the entire value chain, from the cultivation of raw materials to the transport and the recycling, and to the ultimate use worldwide. It also a requirement that every individual firm cultivating raw materials for biodiesel production, such as a farm growing rapeseed, must be certified and the processes used must be precisely documented — e.g., the type of fertilizer used and how often it is applied.

The construction industry in Germany also faced a complex task. It had to cope with two significant tightenings of the requirements of the German Energy Saving Ordinance (Energieeinsparverordnung) within two years, and must now prove a minimum energy efficiency value in advance by calculation for each individual new building and each modernization of an old building. The parameters of transmission heat losses and energy use are also complex in this instance, but were simplified by specially developed software tools.

Furthermore, the comparison with consumer goods that the VDMA refers to several times is confusing. If the VDMA says that a textile machine is not a washing machine, then it is undoubtedly right. If, however, it wants to imply that there are no solutions, that a calculation process would be too complex, then the examples above suggest that it will probably be wrong in this respect. Furthermore, this could lead the parties involved to underestimate the situation that the textile industry will in the near future depend on calculations, since, in fact, we have demonstrated that trade's requirements and willingness to provide proof would increase. And it is vitally important not to forget that in an evaluation of sustainability along the textile production chain not only that there are new machines among the others in the competition, but above all that new machines, with their greatly improved energy efficiency, will also supersede existing old machines. Textile producers' investment is then no longer just a perception of the ROI, but can be in their vital interests.

Particularly against this backdrop, it is a shame for both initiatives that something seems initially to have been started as a joint project within the framework of NU Wave, but was then continued separately, even though a European solution under CEMATEX's one roof would be so important for the positioning of the entire industry. The reasons for the split will be hard to ascertain. The VDMA's criticism of a label, which was at least partially justified, might be one reason; the fact that the VDMA's Blue Competence initiative was originally developed by the VDW and extends across all of the VDMA's machinery areas could well be another. The German textile machinery industry must consider whether the national interest of Ger-

man engineering weighs heavier in this specific question than its specific interests as a group of textile machinery manufacturers.

And it is surprising that ManuTex is not truly active on this issue, even though the issue of environmentally friendly textile processing was announced in the main R&D focal points of the May 2007 roadmap. A joint initiative by CEMTAEX and EURATEX with scientific accompaniment by the ITA would surely be the first point of call for achieving a sustainable solution for sustainability calculations along the textile value chain.

Here, Europe's other big associations — SYMATEX (Belgium), AMTEX (Spain), UCMTF (France), TMAS (Sweden), Swissmem (Switzerland), BTMA (UK), and GTM (Netherlands) — are then also called upon to work towards a European solution. Especially Swissmem and UCMTF, which are in general highly active.

## Other CEMATEX members

The Swiss association Swissmem has taken on the issue, but is also seeking a solution of its own. It has launched three concrete projects that are being carried out with the support of expert consultants and scientific accompaniment (Züst Engineering, inspire, Lucerne University of Applied Sciences and Arts), as well as working groups consisting of specialist company representatives, and which are part of the energy-efficiency action plan. According to the project leader, Sonja Struder, the issues of waste-heat utilization and optimum regulation will soon deliver their first results in the form of planning aids for companies.

With the initiatives and projects, Swissmem is seeking leadership of the energy-efficiency issue in the Swiss MEM industry and wants to launch further projects once these are successfully completed. Nevertheless, the VDMA's Blue Competence initiative is under keen observation. Swissmem faces the dilemma, however, that it is a general engineering association of which textile machinery forms only one part; here too, therefore, national interests could be at loggerheads with industry requirements.

As purely a textile machinery association, the French association UCMTF does not have the same problem. It has also been engaged in energy-saving measures for years and holds advanced training programs and seminars on the issue. For Bruno Ameline, UCMTF Chairman, "energy savings are not just a fashion or a "politically correct" attitude but a real "must" both from ethical and economical points of view. He adds that the responsibility of the machinery manufacturers is not to influence the consumption of end products but to reduce significantly the energy necessary for the production level set by the market." Now, it is time to take the next step.

In conclusion, we welcome and approve of all initiatives on the issue of sustainability equally. ACIMIT has established some facts and the VDMA must now do one better and, with the usual German rigor, will surely deliver an excellent result.

## Prospect

It would be desirable for the textile industry and textile machinery industry for those involved then also once more to think and do business in European and global terms — as quickly as possible — in order to drive forward and master the gigantic task of changing the worldwide textile industry in terms of sustainability. Then Kofi Annan's dream of making the world a better place with the help of the textile industry can, for certain, be realized more quickly and more *sustainably*. ■

## Next issue

### **Part 2:**

**Sustainability efforts of companies in the textile machinery and textile chemicals industries.**

## More links:

<http://en.wikipedia.org/wiki/Sustainability>

[http://en.wikipedia.org/wiki/Sustainable\\_fashion](http://en.wikipedia.org/wiki/Sustainable_fashion)

[http://de.wikipedia.org/wiki/Global\\_Organic\\_Textile\\_Standard](http://de.wikipedia.org/wiki/Global_Organic_Textile_Standard) (GERMAN LANGUAGE)

[http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Navigation/Statistiken/Zeitreihen/Indikatoren/Nachhaltigkeitsindikatoren\\_\\_nk.psml](http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Navigation/Statistiken/Zeitreihen/Indikatoren/Nachhaltigkeitsindikatoren__nk.psml)  
(GERMAN LANGUAGE)

[https://www.mckinseyquarterly.com/Energy\\_Resources\\_Materials/Environment/Valuing\\_corporate\\_social\\_responsibility\\_McKinsey\\_Global\\_Survey\\_Results\\_2309](https://www.mckinseyquarterly.com/Energy_Resources_Materials/Environment/Valuing_corporate_social_responsibility_McKinsey_Global_Survey_Results_2309)

[https://www.mckinseyquarterly.com/When\\_sustainability\\_means\\_more\\_than\\_green\\_2404](https://www.mckinseyquarterly.com/When_sustainability_means_more_than_green_2404)

<http://www.nudiejeans.com>

<http://www.oneleaf.ca>

<http://www.royalblush.ch>

<http://aatcc.informz.net/admin31/content/template.asp?sid=19110&ptid=99&brandid=4199&uid=1033784768&mi=1925898>

<http://www.sustainabledesigners.org/projects/fair-trade-label-for-designers-manufacturing-in-the-usa/>

<http://www.facebook.com/pages/National-Association-of-Sustainable-Fashion-Designers/122933957757723>

<http://www.pdc.us/>

<http://www.facebook.com/PortlandFashionWeek>

<http://www.ottogroup.com/en/verantwortung/nachhaltigkeit.php>

[http://www.eoearth.org/article/Green\\_Washing:\\_Do\\_You\\_Know\\_What\\_You\\_Are\\_Buying](http://www.eoearth.org/article/Green_Washing:_Do_You_Know_What_You_Are_Buying)

<http://thegreenlightdistrikt.com/2010/08/05/green-marketing-or-green-washing-part-deux-enforcement/>

<http://yourlife.usatoday.com/your-look/story/2011/04/FTC-to-issue-new-green-guidelines-address-tsunami-of-marketing-claims/46329674/1>

<http://www.ftc.gov>

[http://www.oeko-tex.com/OekoTex100\\_PUBLIC/content.asp?area=nebenmenue&site=presseinformationen&cls=02](http://www.oeko-tex.com/OekoTex100_PUBLIC/content.asp?area=nebenmenue&site=presseinformationen&cls=02)

<http://www.nikebiz.com/crreport/>

<http://www.nikebiz.com/crreport/content/strategy/2-1-4-a-new-model-and-shift-to-sustainable-business-and-innovation.php?cat=cr-strategy>

[http://www.mcdonough.com/writings/inspiration\\_innovation.htm](http://www.mcdonough.com/writings/inspiration_innovation.htm)

[http://www.outdoorindustry.org/resources.working.php?action=detail&research\\_id=53](http://www.outdoorindustry.org/resources.working.php?action=detail&research_id=53)

[http://www.vdma.org/wps/portal/Home/de/Branchen/W/WZM/Technik\\_und\\_Umwelt/WZM\\_A\\_20100924\\_BlueCompetence?WCM\\_GLOBAL\\_CONTEXT=/vdma/Home/de/Branchen/W/WZM/Technik\\_und\\_Umwelt/WZM\\_A\\_20100924\\_BlueCompetence](http://www.vdma.org/wps/portal/Home/de/Branchen/W/WZM/Technik_und_Umwelt/WZM_A_20100924_BlueCompetence?WCM_GLOBAL_CONTEXT=/vdma/Home/de/Branchen/W/WZM/Technik_und_Umwelt/WZM_A_20100924_BlueCompetence)

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<http://www.dappolonia.com>

<http://www.euratex.org/>

<http://www.cematex.com/>

<http://ec.europa.eu/trade/creating-opportunities/economic-sectors/industrial-goods/textiles-and-footwear/>

[http://ec.europa.eu/research/fp7/understanding/fp7inbrief/what-is\\_en.html](http://ec.europa.eu/research/fp7/understanding/fp7inbrief/what-is_en.html)

[http://cordis.europa.eu/fp7/understand\\_en.html](http://cordis.europa.eu/fp7/understand_en.html)

<http://eippcb.jrc.es/reference/txt.html>

[http://ec.europa.eu/europe2020/priorities/sustainable-growth/index\\_en.htm](http://ec.europa.eu/europe2020/priorities/sustainable-growth/index_en.htm)

<http://www.switch-asia.eu>

[http://en.wikipedia.org/wiki/Organic\\_cotton](http://en.wikipedia.org/wiki/Organic_cotton)

<http://cottontoday.cottoninc.com/sustainability-about/LCI-LCA-Cotton-Fiber-Fabric/>

<http://www.iscc-system.org>

<http://www.redcert.org>

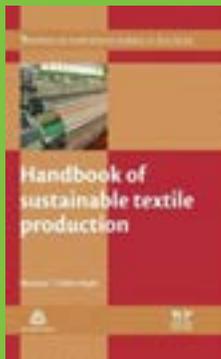
## Books:



Strategy for Sustainability:  
A Business Manifesto  
[Hardcover]

Adam Werbach (Author)

<http://www.amazon.com/Strategy-Sustainability-Manifesto-Adam-Werbach/dp/142217770X>



Handbook of Sustainable  
Textile Production  
(Woodhead Publishing  
Series in Textiles)  
[Hardcover]

Marion Tobler-Rohr (Author)

[http://www.amazon.com/Handbook-Sustainable-Production-Woodhead-Publishing/dp/0857091360/ref=sr\\_1\\_1?s=books&ie=UTF8&qid=1329413172&sr=1-1](http://www.amazon.com/Handbook-Sustainable-Production-Woodhead-Publishing/dp/0857091360/ref=sr_1_1?s=books&ie=UTF8&qid=1329413172&sr=1-1)

Texdata Magazine  
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# Sustainability efforts of companies in the textile machinery and textile chemicals industries.

**I**n the first part of our report about the sustainability in the textile industry we gave you a comprehensive overview of the efforts and strategies that are pursued in the different areas of the textile value chain. In detail, we showed the changes, risks and chances in working towards more sustainability in textile production and how important the topic will be for the industry in the next few years. In our second part we concentrate on the concepts and innovations of the textile machine producers and textile chemistry.

by Oliver Schmidt



## Life Cycle Assessment

If we want to take a closer look at the influence of textile production and therefore, the textile machines and textile chemistry on sustainability, we must first take a look at the life cycle of a textile to be able to analyse the life cycle assessment. A Life Cycle Assessment (LCA), also known as ecological balance, is a systematic analysis of the environmental effects of products during the entire life cycle („from cradle to grave“) or up to a certain point in time of the processing („from cradle to factory gate“).

In textile production for example for cotton products this means the determination of the decisive LCA-factors from land management over the seed, cotton fertilization, harvest and transport, the thread production and finished textiles in bulk with all further processing like dyeing, washing, drying, the production of clothes, packaging and the transport to the stores of trade and measuring their values.

There have been approaches to do this for quite some time. Dr. Tobler-Rohr who was introduced in the first part had already examined this in her specialist paper in 1997, 'Life cycle assessment of a cotton fabric in textile finishing'. In her study, she examined two different textiles in the finished process. On the one hand, a woven product [a blend of cotton (57%)/viscose (43%)] and on the other hand knitted goods [cotton(96%) with some Lycra(4%)]. LCA-evaluations are not trivial. To conduct them, it needs certain standard methods like for example CML, which is defined as follows by 'PE International – Experts in sustainability', a company specialised on sustainability, active since 1991: „The CML is a impact assessment method collection, which restricts quantitative modeling to relatively early stages in the cause-effect chain to limit uncertainties and group LCI (life cycle inventory) results in so-called midpoint categories, according to themes. These themes are common mechanisms (e.g. climate change) or commonly accepted grouping (e.g. ecotoxicity). The data for the impact categories “CML 2001” are according to the information of the Institute of Environmental Sciences, Leiden University, The Netherlands, published in a handbook and based on various different authors.” CML is only one possible evaluation procedure.



Other procedures are for example MIPS, Sustainable Process Index and Eco-Indicator.

The methods have a database of individual factors that harm the environment like for example CO<sub>2</sub>, lead, particulate matter, sulphur dioxide etc., separate them into categories of influences on for example greenhouse effect, heavy metals and winter smog, and rate these influences in indicators. This is intended to make production processes comparable and shall evaluate the partial processes of the many different ways of textile production, starting with different yarns regarding material composition, strength and processing and the versatile procedures of total further processing exactly, to determine those processes that have an especially high or bad influence on the aspects of sustainability.

Lets jump from the beginning and basics of the examination to the current results. The Cotton Foundation introduced an own study in the year 2011 called 'Life Cycle Assessment of Cotton Fiber and Fabric'. The study was prepared for VISION 21, a project of The Cotton Foundation and managed by Cotton Incorporated, Cotton Council International and The National Cotton Council. The research was conducted by Cotton Incorporated and PE International. The study examines cotton over the entire Life Cycle from planting all the way to the end of the textile. The textile production was divided into individual sub processes or manufacturing steps, and the respective influence factor on aspects of sustainability were named.

Table 1 shows the assignment.

**Table 1: Definition of textile processes**

| Textile Process                          | Included inputs   |
|--|---|
| Bale Opening - Spinning (knits & wovens) | Energy for opening, cleaning, mixing, carding, pre-drawing, combing, drawing, and spinning cotton fiber into yarn.  |
| Yarn Dyeing (knits)                      | Energy, dyes and chemicals, emissions to water, and wastewater treatment processes related to scouring, bleaching, dyeing, extraction and drying, and repackaging greige yarn into colored yarn. Batch Dyeing (knits) Energy, dyes and chemicals, emissions to water, and wastewater treatment processes related to inversion, staging, jet prep, jet dyeing, softening in the jet, extraction, and relax drying. |
| Knitting (knits)                         | Energy for knitting yarn into fabric. Compaction (knits) Energy for used to reduce length shrinkage.  |
| Beam/Slash/Drying (wovens)               | Energy and chemicals for beaming, slashing, and drying warp yarn. Weaving (wovens) Energy for weaving warp and fill yarn into fabric.   |
| Continuous Dyeing (wovens)               | Energy, dyes, chemicals, emissions to water, and wastewater treatment processes related to singeing, desizing, scouring, bleaching, mercerizing, drying, dyeing, and redrying of greige yarn into colored yarn. Sanforizing (wovens) Energy and water used for shrinkage control of the finished fabric.  |
| Finishing (knits & wovens)               | Energy, chemicals, and emissions to water related to the wet finishing, drying, and curing of fabric.   |

Source: Life Cycle Assessment of Cotton Fiber and Fabric, ©2011 Cotton Incorporated

Table 2 shows the influences examined for the individual manufacturing steps.

**Table 2: Environmental Impact Categories**

| Abbreviation | Technical Term               | Impact Example             |
|--------------|------------------------------|----------------------------|
| AP           | Acidification Potential      | Acid rain                  |
| EP           | Eutrophication Potential     | Nutrient loading to stream |
| GWP          | Global Warming Potential     | Greenhouse gas emitted     |
| ODP          | Ozone Depletion Potential    | Ozone hole over polar ice  |
| POCP         | Photochemical Ozone Creation | Smog Potential             |
| PED          | Primary Energy Demand        | Electricity & fuel needed  |
| Water        | Total volume used            | Irrigation water           |
| ETP          | Eco -Toxicity                | Animal health              |
| HTP          | Human Toxicity Potential     | Human health               |

Source: Life Cycle Assessment of Cotton Fiber and Fabric, ©2011 Cotton Incorporated

Put simply, the study says that the spinning procedure poses to be the highest part of the influences due to the high-energy consumption, followed by the dyeing and finishing processes. In detail it says: “Opening through spinning

accounted for more than 50% of the textile impact in four of the seven categories considered. These four categories are all related to energy use. Part of the result may be attributed to the fact that a majority of the mills participating in this study were using ring spinning and were producing

combed yarns, which requires additional steps in the yarn making process. As would be expected, the dyeing and finishing processes contributed to eutrophication potential (EP) and water use.”

Therefore, our examination of the innovations shall be more in detail regarding more sustainability especially the energy efficiency resp. energy savings in spinning as well as the energy, water and use of chemicals of the process steps dyeing, drying, printing and finishing.

We will look at the efforts the companies of the textile machine producers and the textile chemistry have made. Here it can be said in advance that even if the topic of sustainability has only taken more space in descriptions and reports about the textile industry only these last years, many

producers of textile machines and providers of textile chemicals have made effort to improve the energy efficiency as well as reduce the water and chemical use for many years already. The developments of the companies were quite consistent with the increasingly strict guidelines of the states and the recognitions of scientific research.

**“Opening through spinning accounted for more than 50% of the textile impact”**

(Study ‚Life Cycle Assessment of Cotton Fiber and Fabric‘ by Cotton Foundation 2011)

After the topic of sustainability was recognized and appointed as a mega trend, approximately during the last five years, it also generated another up rise in textile chemistry and among textile machine producers. In the years 2008 it was the main topic of the third AachenDresden Conference.

“The conference will focus on “Sustainability” in terms of a paradigm change from planning and controlling of productivity towards the design of products and processes according to a responsible use of resources.”

And in October 2009 the German textile machinery association VDMA said the following about the upcoming ITMA Asia: “Although being back on track again, the cost pressure on textile producing enterprises will remain high and additional tasks are under way since governments in Asia are adopting stricter environmental standards. Sustainability has become an issue textile mills have to address for cost as well as for legal reasons. German textile machinery manufacturers are offering solutions for higher energy and material efficiency that can help Asian textile producers to realise substantial cost savings thus giving them a competitive edge.”

In 2011, sustainability was one of the main topics of the WorldTextileSummit at the eve of the ITMA Barcelona and currently it is a top topic of the 31st International cotton convention in Bremen from March 21 to 24, 2012.

“Sustainability has become an issue textile mills have to address for cost as well as for legal reasons.”

(VDMA 2009)

Here it is said: „Sustainability is also discussed from different points of view – in every case in detail, neutral and from the view of experts.“ For example Dr. Michael Arretz, member of the management of the textile trade chain KiK, Germany, wrote about “Sustainability in KiK’s Supply Chain”.

The omnipresence of the topic pushes all involved players to increase their efforts and to continuously develop new and better procedures that we want to take a look at in detail below. But first back to the beginning to measure up to the companies that have been working on sustainability for a long time already, the pioneers.

## Sustainability news at TexData in history

The first time that our TexData editorial office came across the word sustainability in its current form, as a positive development for the world, considering the aspects of environmental protection, social justice and the economy and interlinks these aspects with each other, was in a press report of a company in the year 2003.

Sender of the document was a company that no longer exists like this today, but many textilers would still know: Cognis. Cognis described itself as follows in 2003: “The company has dedicated its activities to a high level of sustainability and delivers natural source raw materials. [...] Additionally, Cognis provides solutions for a number of other industries, such as coatings and inks, lubricants, textiles[..]”. According to the website Cognis no longer offers textile chemistry services today, and the sustainability meanwhile refers to the strategy of the parent company BASF.

The first entry at TexData to the word sustainability was a report to the IFAI (Industrial Fabrics Association International) Expo 2001. William McDonough was one of the keynote speakers there. The following statement was made: “William McDonough is an internationally renowned designer and one of the primary proponents and shapers of what he and his partners call ‘The Next Industry Revolution’.

Recognized by Time magazine as a “Hero for the Planet,” Mr. McDonough is a visionary whose design firm, William McDonough + Partners,

Architects and Planners, practices ecologically, socially and economically intelligent architecture and planning in the U.S. and abroad.” In 1996, President Clinton awarded Mr. McDonough the Presidential Award for Sustainable Development, the nation’s highest environmental honor. McDonough stayed true to his ways. In April 2010 he published the book ‘Cradle to cradle’ together with Michael Braungart, which is said to be the manifest for the above stated ‘next industry revolution’. With his company McDonough Braungart Design Chemistry (MDBC), McDonough offers consulting and certification services concerning sustainability. Among many others, BASF and CIBA are his customers.

## The chemical companies

BASF had occupied the topic sustainability quite early on as chemistry giant and branch top of the class. For example, Stuart L. Hart stated in the Harvard Business Review of 1997: „With the sustainability imperative in mind, BASF, the German giant, is helping to design and build chemical industries in China, India, Indonesia, and Malaysia that are less polluting than in the past.



By colocating facilities that in the West have been geographically dispersed, BASF is able to create industrial ecosystems in which the waste from one process becomes the raw material for another". In the year 2003 BASF reported to TexData that the company is developing new highly efficient cleaning agents to be able to lower the water consumption. The UN had appointed the year 2003 as the year of fresh water under the leadership of Kofi Anan as General Secretary to show how important responsible work with water is for a sustainability process.

Ciba also appeared with a report about sustainability at TexData. In 2005 the company justified a price increase of its chemicals by 10% among other things with the requirements of more sustainability.

Michael Effing, Head of Textile Effects Europe, said back then: „We have the responsibility of developing improved environmental solutions that meet legislation standards“.

Founded in 1997 as a Spin-Off of Novartis, created one year earlier, Ciba stands for ‚Chemische Industrie Basel‘ and was also taken over by BASF in 2008.

Thus, the three companies of the chemical industry that had dedicated themselves to sustainability relatively early on sail under the flag of BASF today, and it will be interesting to see how the company has faced its responsibility these last years and which textile production processes were improved.

Even today, sustainability is an important topic for BASF. The German chemistry giant sees itself as a partner with the division textile chemicals, supporting textile production for over 100 years, and developing innovative solutions for sustainability along the textile value chain under the motto „Putting \*Future into textiles“ together with his partners. Main points of the sustainability strategy are the three columns consumer safety, resource saving and climate protection.



## “We can support our customers on how to better meet their ecological requirements.”

(BASF Website 2012)

In the area consumer safety BASF describes itself as follows: “With our many years of experience and expertise in the textile industry, we are informed on the latest ecological requirements. We constantly evaluate and adjust our product portfolio to ensure compliance with the major standards for our products. In addition to providing information on our textile chemicals, we can support our customers on how to better meet their ecological requirements. Our products can be used to produce garments that fulfill the following standards: Oeko-Tex® Standard 100, GOTS, APEO free list, European Union Ecolabel, as well as those of leading retailers and brands.”

EU Ecolabels was issued to BASF in October 2011 for a larger number of refining chemicals that meet the special requirements also for textiles for children under 3 years and direct skin contact. In addition BASF offers a formaldehyde-free textile processing system. The end of February the company reported that BASF Textile Chemicals listed in the Annex will not release substances from textile articles that raise a need for registration according to REACH (REGULATION (EC) No 1907/2006), Article 7.1 (registration of substances intended to be released). Furthermore they confirm that the BASF Textile Chemicals listed below can be used for the production of textiles that do not trigger a notification according to REACH, Article 7.

REACH is the European Community Regulation on chemicals and their safe use (EC 1907/2006). It deals with the Registration, Evaluation, Authorisation and Restriction of Chemical substances. The law entered into force on 1 June 2007 mit folgender Zielsetzung: “The aim of REACH is to improve the protection of human health and the environment through the better and earlier identification of the intrinsic properties of chemical substances.



[ec.europa.eu/environment/chemicals/reach/reach\\_intro.htm](http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm)



[echa.europa.eu](http://echa.europa.eu)



[www.sinlist.org](http://www.sinlist.org)



[www.chemtrust.org.uk](http://www.chemtrust.org.uk)

At the same time, REACH aims to enhance innovation and competitiveness of the EU chemicals industry. The benefits of the REACH system will come gradually, as more and more substances are phased into REACH.”

The REACH Regulation places greater responsibility on industry to manage the risks from chemicals and to provide safety information on the substances. Manufacturers and importers are required to gather information on the properties of their chemical substances, which will allow their safe handling, and to register the information in a central database run by the European Chemicals Agency (ECHA) in Helsinki. The Agency acts as the central point in the REACH system: it manages the databases necessary to operate the system, co-ordinates the in-depth evaluation of suspicious chemicals and is building up a public database in which consumers and professionals can find hazard information.”

In order to achieve the goals of REACH faster, the SIN List was brought to life by the non-profit Organisation ChemSec. The SIN (Substitute It Now!) List is an NGO driven project to speed up the transition to a toxic free world. The SIN List 2.0 consists of 378 chemicals that ChemSec has identified as Substances of Very High Concern based on the criteria established by the EU chemical regulation, REACH. The SIN List is based on a straightforward concept: substitute hazardous chemicals with safer alternatives. ChemSec, The International Chemical Secretariat, was founded in 2002 by four environmental organisations. ChemSec has an ambitious focus and goal: a toxic free environment by 2020.

## BASF

In the field of Ressource Saving BASF offers eco-efficient solutions which mean that they add value from both economical and ecological aspects. The eco-efficiency of a product or process is presented using BASF's Eco-Efficiency Analysis. This is a tool developed by BASF, allowing the comparison of different products and processes. The entire life cycle of a product including its use is investigated in great detail. The analysis takes into account the total environmental impact as well as all the costs from production to disposal, so that the entire value-added chain is covered.

Originally developed by BASF inhouse, the tool was meanwhile certified after BASF by independent institutes and is also provided to other companies by BASF. Therefore, BASF supplied a tool for textile chemistry similar to Nike's Environmental Apparel Design Tool or the calculation tool of the Sustainable Apparel Coalition.

Solutions of the BASF for resource saving are for example Cyclanon® XC-W New, an after-soaping agent for reactive-dyed cellulose fibers , and Helizarin® ECOSOFT Printing System, an eco-efficient pigment printing solution.

Also in the area of climate protection BASF is making great effort – especially to reduce CO<sub>2</sub>-pollution. Here the company says: “In order to further deepen our understanding the impact textiles have on climate change along the textile value chain, and to evaluate the potential of reducing carbon dioxide emissions using BASF products and technologies, BASF conducted a joint project with customers and partners along the textile value chain that are Systain Consulting (Member of the Otto Group), Puma AG and textile mills in Bangladesh. Carbon footprints of specific textile articles were calculated from empirical data collected during the actual production process.

In addition, the partners were able to reduce overall carbon dioxide emissions during production by using BASF textile auxiliaries and technologies.”

A solution for CO<sub>2</sub>-reduction is for example the BASF Color Fast Finish: a one-step-process of pigment dyeing and finishing. The total processing time is considerably shortened compared to the conventional process, reducing energy and water consumption, and thereby carbon dioxide emissions.

“Carbon footprints of specific textile articles were calculated from empirical data collected during the actual production process.”

(BASF Website 2012)

All in all it can be said that the world market leader from Germany takes the responsibility for more sustainability very serious and shows clear will to examine and improve existing products and processes regarding their damage to the environment in the different areas or to replace them with better processes. Surely the experiences of

BASF could also help the Sustainable Apparel Coalition (SAC) and a direct membership would be desirable.

Lets take a look at other companies of the textile chemistry.

## Clariant

The Swiss chemical company Clariant also took great leaps in the development towards more sustainability these last years. Clariant pursues two goals regarding sustainability. For one, the company strives to produces in a more sustainable manner itself. To do this, the company measures the CO<sub>2</sub>-emissions, water consumption, energy usage and the waste per produced ton. From 2006 to 2010 all of these values were reduced; the CO<sub>2</sub>-emission for example from 236kg/ton by 35% to 154 Kg/ton.

## „The challenge to make textile processes sustainable as far as environmental resources are concerned is a pressing reality, now and in the future.”

(Clariant 2011)

In 2010 Clariant created a separate sustainability report for the first time. CEO Hariolf Kottmann says: “After 15 years, Clariant can look back on a brief but successful company history. The recent past has been turbulent, marked by the financial crisis and a far-reaching reorientation of our Group. The aim of the measures associated with these changes, which are now largely complete, was to create a sound operational and technological basis for future profitable growth. However, they were also intended to realign our company according to the criteria of sustainability and corporate and social responsibility. These aims are intrinsically linked. In difficult times in particular, companies that are sustainably managed and that act responsibly are proven to be more successful in the long term.”

And on the other hand Clariant develops products and processes that lead to a more sustainable production. With clear focus and great success. Clariant had presented 25 new products at the ITMA 2011 in Barcelona under the motto „Performance that innovates – Innovation that performs“, of which many had the goal of improving sustainability in production. Regarding this sustainable production, Clariant defines its role as follows: „The challenge to make textile processes sustainable as far as environmental resources are concerned is a pressing reality, now and in the future.

Wherever possible sustainability finds its way into the innovation development of Clariant’s products, processes or know how technology. Clariant is always keen to raise the bar in quality, leading-edge technology with environmental and health benefits.”

For example, new elements for sustainable acid dyes like Nylosan® Brilliant Red S-3R belongs to the presented innovations, which Clariant describes as follows: „Nylosan® Brilliant Red S-3R is a novel, high build-up and wetfast acid dyestuff for brilliant neutral red shade on PA and WO. Higher build-up on PA or WO than any dyestuff of similar shade. High wetfastness level, also in dark shades, on PA and on WO, equal or even better than is possible with reactive dyes. Perfect fabric appearance on wool, showing no differentiation between wool root and tip.” Or the Diresul® range, sulphur dyes in disperse form with high chlorine fastness. The dyes are suitable for PES/CEL dyeing, Diresul® D are specially indicated for workwear articles. Neutral pH dispersed form, suitable for dyeing 100 % CO as well as PES/CEL blends in continuous applications. Further advantages are the highly concentrated, sulphide free elements and the high chlorine fastness.

Even more sustainable appears the Imerol® BLUE liq - Blue Magic Process, an all-in-one bleaching auxiliary based on the exclusive Singulet Bleaching technology. Imerol® BLUE liq opens new perspectives for the exhaust bleaching processes and to keep the water for drinking. Clariant announces that the process reduces the water consumption up to 75% in pretreatment (no rinsing needed after the bleaching), but generates extreme absorbency, prerequisite for a perfect dyeing.

It reduces the effluents load (COD, BOD, TDS, etc.) and effluents volume, allowing a higher production with the same water treatment capacity. And it is APEO and phosphorus free.

Even if the individual substances and procedures seem difficult to understand, it becomes clear that colorants and processes are changed in a manner that they perform their task the same way or even better, and reduce water consumption and chemical usage in the process, and keep chemical residue and waste as low as possible or at best do not even let them accrue.

Clariant achieved a great breakthrough with their Advanced Denim Process, a fabric that accounts for some 14% of global cotton production. The company received the EU Ecolabel for the denim produced with this process, which is known for having especially hard criteria for sustainability. Clariant developed its own denim prototype clothing collection, working with a textile mill and laundry, in order to demonstrate that achieving Ecolabel certification for denim is a practical reality with its Pad/Sizing-Ox dyeing technology. Problems associated with traditional denim fabric production have contributed towards making Ecolabel certification for denim difficult to attain.

The advantages of the new procedure Clariant describes as follows: “In the conventional denim indigo dyeing process, the fabric passes through a line of 10 to 14 vats, depending on the equipment used. Clariant’s Denim-Ox process brings this sequence down to 4, and its Pad/Sizing Ox reduces this further to just 1 vat. Both methods utilize the company’s Diresul® RDT dyes, which generate a broader spectrum of shades than usually associated with conventional indigo dyes but without its environmental problems.”

## “We needed to show our partners in the denim production chain that our new process could fundamentally improve their own environmental credentials”

(Miguel Sanchez, head of global PL dyes in the Textile Chemicals business unit of Clariant 2011)

The new denim shall save around 92% water and 27 % energy in production. The cotton waste goes back by 87,5 % and no wastewater is generated at all anymore. Reason enough for the company to continue projecting the savings and the results are definitely something to be proud of. „It has been calculated that if the new technology were adopted in the production of 25% of jeans worldwide, it would save 62 million m<sup>3</sup> of water/year, the equivalent of the water consumption of 1.7 million people. The new chemistry available would also eliminate the need to treat 8.3 million m<sup>3</sup>/year of wastewater, 220 million kWh of power would be saved and the carbon footprint of the industry in CO<sub>2</sub> emissions reduced accordingly.”

Miguel Sanchez, head of global PL dyes in the Textile Chemicals business unit of Clariant, says: “We needed to show our partners in the denim production chain that our new process could fundamentally improve their own environmental credentials and their ability to promote and market them. The EU Ecolabel endorsement illustrates that the Advanced Denim process is an essential element for those denim manufacturers who wish to benefit from the retail and consumer benefits that flow from Ecolabel status.”

With consideration that this is only the dyeing process and it was calculated with 25% and denim is used for 14% of the worldwide cotton production, it can be estimated how much water and energy could be saved with higher goals in sustainability and the clear will to develop innovations, if this process can save the entire water consumption of the inhabitants of a German metropolis like Munich already with 25% market share of the new denim.

### Huntsman

For the US-company Huntsman sustainability is a fundamental part of their corporate and business strategies. The company is a leading global provider of high quality dyes and chemicals to the textile and related industries.

Since the year 2008 the company has been publishing an Environmental, Health und Safety (EHS) report, which is currently to be replaced by a sustainability report. In the year 2010 Huntsman created a Corporate Sustainability Office to coordinate the own sustainability efforts and help the individual business divisions to accept the challenges of the market for more sustainability and to develop solutions. Huntsman signed the United Nations Global Compact in 2011, as Kofi Anan demanded from all companies at the WTS in Barcelona, is a member of the SAC since 2011, and advertises EHS with the following vision for 2020: „To provide innovative solutions which enrich lives and help create a sustainable future, with no harm to people or to the environment.“

**“Using this partnership as a template for others in our supply chain gives Nike a path to real, sustainable change within the footwear and apparel industry”.**

*(Eric Sprunk, Nike's Vice President of Merchandise and Product, 2012)*

Current information of March 26, 2012 shows how Huntsman brings the vision for more sustainability to life. In a strategic partnership with the textile manufacturer Ramatex from Malaysia the partners want to take the first step and eliminate the discharge of hazardous chemicals in their manufacturing processes. The project shall support the sports item giant Nike in the realization of its roadmap “Towards Zero Discharge of Hazardous Chemicals”.

Nike had promised this in public together with five further large brand name companies as a reaction to the ‘Dirty Laundry’-report of the environment organisation Greenpeace in July 2011. Ramatex now takes on this challenge as one of the first textile producing companies together with Huntsman. Eric Sprunk, Nike’s Vice President of Merchandise and Product, comments on the partnership as follows: “We are very excited with the strategic partnership between Ramatex and Huntsman Textile Effects. This kind of collaboration will allow Nike to begin to address some of the key challenges we face in implementing the Road to Zero goals. Using this partnership as a template for others in our supply chain gives Nike a path to real, sustainable change within the footwear and apparel industry”.

The example shows well what we had already predicted in the first part of this report. The high goals of the brand name companies and trade regarding sustainability will lead to a full

vertical examination of the textile value chain from top to bottom and will force textile producing companies to introduce new procedures that are directed more towards sustainability.

## DyStar

Another heavy weight of the textile chemistry, the company DyStar with headquarters in Singapore, has been working on processes and products that meet the wish for more sustainability for a long time. In 2006 DyStar received the Lillehammer Award of the European research initiative EUREKA for an electrochemical dyeing project which enables recycling of dyebaths, thus considerably reducing chemicals, water consumption and effluent output. DyStar is also a member of SAC and has been publishing a sustainability report since 2010. Centre of the own sustainability strategy for DyStar is the transparency of the entire value chain. Based on this transparency, you can then determine how far goals of sustainability are already being fulfilled and which processes must be replaced with innovative procedures. DyStar has joined the United Nations Global Compact in February 2012 and has launched in March a Sustainable Textile Service Program to help Brands, Retailers and their Industry partners reduce the impact of their products and processes on the environment and optimize supply chain costs.

## “Centre of the own sustainability strategy for DyStar is the transparency of the entire value chain.”

(DyStar Website 2012)

“The programs support and provide solutions to our customers’ sustainability initiatives”, states Dr. Ron Pedemonte, DTS global service manager.

DyStar offers four extensive development programs to Brands, Retailers and their Industry partners to improve sustainability in the supply chain:

- **Restricted Substance List (RSL) Development**
- **Textile Mill Efficiency Improvement**
- **Chemical Management Improvement**
- **Environmental Improvement**

DyStar describes the new programs as follows: “These four new programs, built on the existing DyStar econfidence® commitment and CSI’s color communication expertise, provide the textile industry with the strongest foundation to rapidly build sustainable products and processes while improving costs and eliminating toxic chemicals from the supply chain.”

A further development that DyStar published recently is the cooperation in a sustainable Indigo dyeing process for the denim industry together with RedElec, Switzerland. This electrochemical dyeing of Indigo will eliminate harmful substances in dyeing and waste water. The team will use its patented products, DyStar Indigo® Vat 40% Solution and RedElec's electrochemical technologies, throughout the development process.

## RadiciGroup

The Italian chemistry company Radicigroup, manufacturer of chemicals, plastic and synthetic fibres with a vertical nylon production went down an unconventional and entertaining path to present its own sustainability strategy recently: Radici had a video created with comic figures that explain Radicis ideas and innovations for a more sustainable production. The Radicigroup describes the strategy behind it in sustainability with the name 'Operation Twenty4' as follows: „Doing business responsibly by combining economic with social, ethical and environmental values is one of RadiciGroup's primary objectives. The Group has long been engaged on the front of sustainability, which it sees as a true challenge. The environmental, climatic, social and economic impact of an industrial firm during its entire lifecycle is huge, and sustainable management of business activities can really make a difference. This is the reason RadiciGroup is committed to reducing the environmental footprint of its industrial activities, from the very beginning to the very end of its production chain, from chemicals to plastics and synthetic fibers.”

“The Group has long been engaged on the front of sustainability, which it sees as a true challenge.”

(RadiciGroup Website 2012)

The concrete goal of the strategy is to reduce the greenhouse gas emissions by 20%, as well as the energy consumption, to increase the percentage of renewable energy in energy mix by 20% and to also increase the usage of recycled materials in the production chain by 20%. Four times twenty percent. What sounds like very large increases at first are not quite as big when you look closer.

Currently, the percentage of the recycled materials in nylon production lies at 15% and would only increase to 18% with an increase by 20%. But the basic philosophy behind it is the right approach and with consistent continuation, significant changes could be recorded already in the next decade.

## The spinning companies

Among the textile machine producers, mainly German companies have been working on energy efficiency for a long time now, even if cost savings were the main topic over sustainability in the beginning. Schlafhorst AG (today Oerlikon Schlafhorst) reported the following about energy savings with an innovation, the Electronic Vacuum Adjustment, EVA, in 2002: „EVA ensures a constant, automatically adjusted spinning vacuum. It guarantees optimum running behaviour and a high yarn quality, saves energy and thus helps to reduce yarn production costs. [...] This yields an energy saving of 1.5 to 7.4 kWh per machine, or more than 60,000 kWh taken over an entire year. The spinning mill saves up to 30 % of its energy costs relative to the individual spinning units and compared with previous Autocoro generations.”

A report from the Barmag AG (today Oerlikon Barmag), that was published shortly after included a statement concerning energy efficiency: “The ACW® for industrial yarns is equipped with the recently developed twin stroke traverse system (TST). Using this traverse system, strokes of 12” (305mm) are realized. In comparison to an increase in diameter, this stroke expansion means measurable energy savings for finishing processes such as twisting or cabling.”

In 2005, Oerlikon Barmag introduced the e-save label. The term was meant to designate all components and machine that saved a significant amount of energy versus conventional solutions. In 2010, the e-save label’s range of application was extended. „So the e-save label no longer describes energy-efficient components alone but also solutions that have taken a big step forward in terms of reduced consumption of resources.”

e-save stands for energy-saving + environment-protecting + efficient. e-save is a mark of distinction presented to resource-optimised machines, components and solutions. The savings may relate to energy, processed air, water, space or CO<sub>2</sub> emissions. “With e-save-certified solutions, you can rest assured that the technology you have chosen is kinder to the environment than conventional processes and it reduces your operating costs at the same time.” An example of this is EvoQuench, the e-save-certified radial quenching. Today, e-save stands for the entire Oerlikon-textile machine group and is firmly anchored in the company strategy and communication.

The most recent developments of Oerlikon show especially well that the way to more sustainability in textile production is mainly evened with technical innovations.

At ITMA 2011 in Barcelona Oerlikon Textile presented a suite of groundbreaking innovations, thereof seven completely new developed textile machines. These innovations address the need for greater efficiency, flexibility and quality with reduced energy consumption. Oerlikon said, that their new textile machines and equipment deliver energy savings of up to 50 % (“e-save”) and productivity gains of up to 25 %. The former CEO of Oerlikon Textile Thomas Babacan said in his ITMA opening speech: “At this year’s ITMA, we are showcasing the most efficient and sustainable product range we have ever produced,” and the Oerlikon Group CEO Michael Buscher added: “With the next generation product portfolio we presented today, Oerlikon Textile has laid the groundwork for sustainable and increased business success, despite a more challenging market environment”.

Products from this portfolio are for example the new Volkmann CT of the Oerlikon Saurer: the eco-drive concept and spindles are the perfect complement to the e-save spindle family and help to save up to 40 per cent of energy costs, even for the finest yarn counts. And the new Autocoro 8 by Oerlikon Schlafhorst, that Oerlikon called the greatest innovation of rotor spinning since 30 years. The machine allows productivity increases of 25%, with high flexibility. Another pioneering innovation is the new eAFK automatic texturing machine for pro-cessing man-made fibers for clothing applications. Thanks to its new modular machine structure, the new machine is much more flexible and efficient. Or the Allma CC4 of Oerlikon Saurer which is revolutionizing the tyre cord cabling market with energy savings of up to 50 per cent.

## “At this year’s ITMA, we are showcasing the most efficient and sustainable product range we have ever produced”

(The former CEO of Oerlikon Textile Thomas Babacan, ITMA 2011)



[www.e-save.oerlikontextile.com](http://www.e-save.oerlikontextile.com)



[www.rieter.com](http://www.rieter.com)



[www.truetzschler.com](http://www.truetzschler.com)



[www.monforts.com](http://www.monforts.com)



[www.brueckner-textil.com](http://www.brueckner-textil.com)

And also other manufacturers of spinning-machines have developed numerous machines and solutions that significantly reduced energy and water consumption.

The Swiss company Rieter does not rely on solutions for sustainability in its company communication with „the comfort of competence“, but more on comprehensive service, but has also consistently realized sustainability goals in all new machines. The new rotor spinning machine R60 saves 5% energy compared to the predecessor R40 5%, at increased productivity of 8%.

The German company Truetzschler achieved further water and energy savings with its last machine series. Energy efficiency remains a big topic for the German producer. With the new card TC 11, savings of approx. 20% electrical energy for each kilogr am carded sliver are realised. The filter system is also more compact and uses smaller fans. Thus, it uses less electrical energy.

Regarding all innovations in the area of spinning with energy savings in individual manufacture steps of 20% or event 30% you must however also consider that the actual spinning is the process with the highest energy need by far, as for example Dr. Tobler-Rohr showed in 2000 in her study „Ways to sustainability in the European textile branch“.

Thus, the special focus regarding energy efficiency is on the spinning machines, which shall not lessen the successes in the other manufacture steps of the spinning mill.

## The finishing companies

Lets leave the spinning sector, even though there would be numerous further solutions to be presented and take a look at the drying and finishing process, which hold the greatest opportunities for savings and new processes next to the spinning and dyeing processes.

Here the two German companies Brückner and Monforts have been in strict competition for many years about which company is leading regarding more sustainability and both continue to bring many new solutions to the market.

Brückner had made reference to TexData to energy efficiency the first time in 2003 in a report about its stenter. „The stenter is provided with energy saving fan motors with inverter control ensuring the separate setting of upper and lower air - accurately and reproducibly.“

Monforts also mentioned energy efficiency in a report about the ITMA 2003 concerning the Stenter 6000: „Monforts new heat recovery system can also be integrated on the roof of the stenter.“

A space-saving heat exchanger recovers heat from the exhaust gas and uses it to preheat up to 60% of the incoming fresh air. This provides energy savings of 10-35% depending on the production. Typical payback period is just one year.”

Both companies have continuously presented new products and solutions for energy saving.

Monforts currently offers the following solutions with special focus on energy saving, environment protection and sustainability: The Montex 8000 stenter which features the new heat recovery module ‘Eco booster HRC’ incorporating a fully automatic cleaning system for its heat recovery system, the new Thermex continuous dyeing process which offers reduced chemicals, energy and water consumption and the new Eco Applicator soft coating process which provides significant energy savings with reduced liquor application and also eliminates the need for a conventional wet-on-wet padder.

A considerably shortened and more economic dyeing process which is assured for continuous dyeing of polyester and cotton blends following the introduction of the new Econtrol® T-CA process. Jointly developed with DyStar Colours it provides a single pad continuous dyeing process for polyester/cellulose blends and requires up to 65% less water, up to 85% less chemicals and offers up to energy reduction.

Brückner is keeping the focus of its new developments on Eco-solutions, energy saving and environmental protection. Concerning the ITMA 2011, the company reported: „The environmental awareness is increasing in many countries, too. The demand for products which are more energy-efficient, more ‘green’ gets louder and louder. BRÜCKNER made in this field in the last years massive investments and developments. “

The company refers to the new stenter POWER-FRAME ECO presented at the ITMA as a quantum leap regarding energy efficiency: „This innovative stenter could be described also as a synthesis of performance and energy effectiveness. The Brückner engineers developed a completely new, environmentally friendly dryer generation, which requires with increased production output considerably less heating energy.

The dryer is provided with a central heating system, a completely new air control system and a sophisticated temperature control system. Compared to a normal stenter with heat-recovery system this dryer saves additionally up to 30 % of energy.”

## Summary:

Sustainability has reached the suppliers of the textile producers for a long time. Textile machine companies and textile chemistry are equally motivated and able to decisively improve the ecological balance of every single textile with new and improved procedures and machines. Now the textile producing companies are up to bat to make the requirements of the consumers and the pending specifications of trade possible. We want to close this report with the words of the former CEO of Oerlikon Textile, Thomas Babacan, who said the following to the participants of the WorldtextileSummit in Barcelona to send them on their way: „Technology redefines business models. Keep exploring new technologies and proof and optimise your value chain with technology experts.“ ■

## More links:

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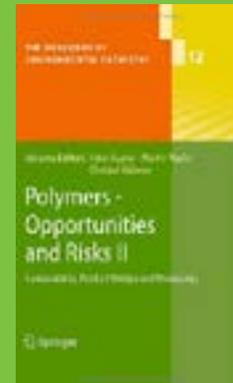
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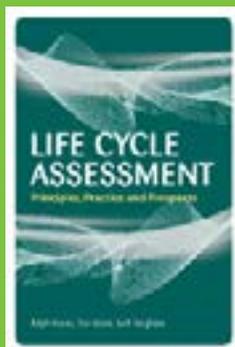
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Texdata Magazine  
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# Sustainability – review 2012 and outlook

by Oliver Schmidt

**L**ast year we started our TexData magazine with a big report on sustainability, and we would like to once again provide you with an update in the first issue of this year as to what has changed in the area of sustainability in 2012. How far have we been able to meet Kofi Anan's request last year in respect of the textile industry changing the world as the most global industry?

First of all we would like to remind you again how we understand sustainability or sustainable development in the sense of the definition of the Brundtland Commission of the United Nations stated on March 20, 1987: "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Hence 'sustainability' is an approach to balance ecological, economic and social interests across the entire value chain under consideration of all aspects of farming, processing and packaging.

Efforts have been made along the entire textile value chain in order to improve sustainability: In the area of cotton, the manufacture of man-made fibres, mechanical engineering industry, national and international organisations, the chemical industry, textile associations and textile companies and last but not least at the large brands and retailers of the garment industry.



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Progress is being made and even if the individual steps might appear small it should be considered when making a judgement that most people overestimate what is achievable in one year and underestimate what they can change in 10 years.

In our last report on sustainability we approached the topic in chronological order. This time we structure the report along the textile value chain to make it easier to react to the different developments of the individual clusters. We start therefore with the fibres and do so with cotton, as it is so important for the entire sustainability process.

Globally there are 250 million people involved in the production of cotton according to the annual report of the Cotton Exchange in Bremen and produce nearly 27 million tons of raw cotton in an area of 36 million hectare. While the figures themselves are large, the picture changes with the percentage of cotton in the global fibre consumption which reduced from over 50% in 1975 to about 34% in 2010. In principle cotton is the more sustainable fibre compared to chemical fibres as it regrows, however especially cotton is repeatedly criticised in connection with sustainability as there is a very high consumption of pesticides for protection and as fertiliser and high water consumption are attributed to cotton. Eco or organic cotton, where farming does not make use of chemicals, has a percentage of only ca. 0.7-1% in the global market. A complete conversion to organic cotton would also be complete utopia in theory, as the area required for farming is not available or large parts of food-farming areas would be eliminated, which nobody who values sustainability would seriously take into consideration.

The consumption of fibre required in the future will increase as well, as for a start the global population in general is growing and on the other hand emerging national economies are going to consume more garments and textiles according to current prognoses.

This is a brief outline of the problem with cotton and a solution sounds like squaring the circle. The topic of sustainability has been a concern for the cotton industry for several years now. Allen A. Terhaar, Senior Advisor com Cotton Council International writes in this respect: ‘Sustainability is an important target for the entire industry’ and ‘Preserving our world should be a worthwhile objective for us all’. He does not however offer specific solutions. Instead he refers to the Life Cycle Analyses commissioned by CCI for cotton fibres and tissues from the planting process to disposal or recycling of the garment. In respect of CO<sub>2</sub> emissions he refers to the fact that the largest quantity of greenhouse gases is emitted in the finishing process of textiles and also household linen. That might probably be correct, sounds however very much like shifting the problem. Terhaar relies above all on technological progress.

*Producers [...] should not only stick to one method, but continually research and check which production methods help best to achieve the target of more sustainability.*

Allen A. Terhaar, Senior Advisor com Cotton Council International

He says: ‘Producers [...] should not only stick to one method, but continually research and check which production methods help best to achieve the target of more sustainability [...]. [...] The USA and a number of other countries apply sustainable methods in cotton production, optimal processes most modern technology. This means that today far less land, water and energy are consumed, there is a lot less soil erosion and pesticides are used less per output quantity compared to the values of 25 years ago or even 5 years.

Mark A. Messura, senior vice president, Global Supply Chain Marketing, Cotton Incorporated, USA, also considers sustainability as a problem for the entire supply chain and counts on research and development for more sustainability. He said on the ITMF Annual Conference 2012 in Hanoi, Vietnam in November 2012: ‘People often ask: How can we strive to plant more cotton when the world needs more food? Well, in the future, the world is going to need more of a lot of things! That’s why cotton has - and will continue to - improve its production practices. The industry will innovate and find ways for cotton to require less land, less water, less energy, and fewer chemicals to generate even more fiber’.

*„The industry will innovate and find ways for cotton to require less land, less water, less energy, and fewer chemicals to generate even more fiber.“*

Mark A. Messura, senior vice president, Global Supply Chain Marketing, Cotton Incorporated, USA

Environmental organisations view this topic completely differently. Hence Greenpeace writes in an article: Workers on the cotton plantations pay for this low price with a 77 hour-week, a miserable health care and enormous exposure to pesticides that are applied in large quantities to the delicate cotton plants. Enormous water requirements are a further problem: Production of one kilogram of spinnable fibre requires 25.000 liters of water! That means that in countries like China, India, the USA and Uzbekistan, that are already very dry farming areas, the soil becomes salty and the ground water level sinks.

And the Umweltinstitut München (environmental institute in Munich): ‘Farming cotton for a single T-shirt devours up to 2000 liter - 10 bath tubs full. 60 percent of the cotton farming area is irrigated artificially. That is about half of the irrigated areas worldwide. Cotton production is therefore responsible for about six percent of global freshwater consumption.’

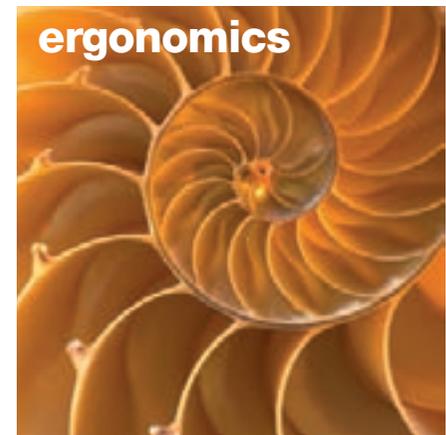
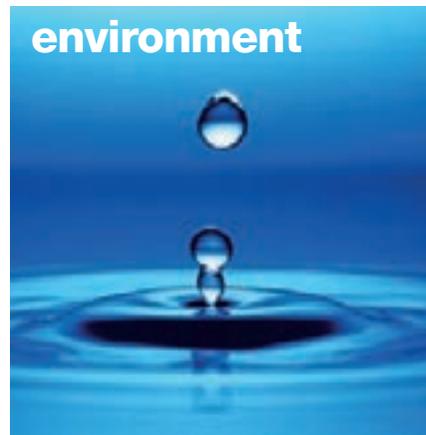
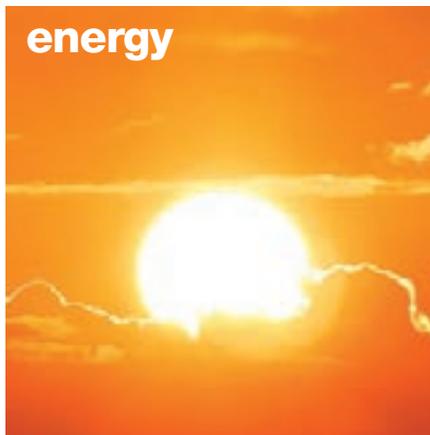
Terhaar names the perception of cotton consuming extremely much water as a widespread delusion. He says: ‘The global water consumption of cotton constitutes about 2.6% of the total amount of water used for farming.’

# e-save

comprehensive efficiency

Oerlikon Textile started to establish e-save – a green label, originally created to brand components and machinery with a significantly reduced energy consumption – successfully back in 2004. In the last few years e-save has become a hallmark for com-

prehensive efficiency. It underlines Oerlikon Textile's technological excellence for economic welfare as well as for a sustainable management of limited resources. Oerlikon Textile innovations are developed with the following four e-save aspects in mind:



To learn more about highly efficient textile machinery  
visit [www.e-save.oerlikontextile.com](http://www.e-save.oerlikontextile.com)

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has a name**  
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Apart from these areas of friction between industry and environmental organisations there are endeavours and attempts that lead to the hope that the cotton industry may find ways to clearly improve their part in the sustainability of textile products.

Two of these initiatives are ‚Cotton made in Africa’ and ‚Better Cotton’.

The ‚Better Cotton Initiative’ (bci) defines its ongoing mission as follows: “bci exists to make global cotton production better for the people who produce it, better for the environment it grows in and better for the sector’s future. bci works with a diverse range of stakeholders to promote measurable and continuing improvements for the environment, farming communities and the economies of cotton-producing areas. bci aims to transform cotton production worldwide by developing better cotton as a sustainable mainstream commodity.”

*„bci exists to make global cotton production better for the people who produce it.“*

„Better Cotton Initiative“ (bci)

*„The Cotton made in Africa Initiative follows the principles of ‚social business’.“*

„Cotton made in Africa“

‚Cotton made in Africa’ describes itself as follows: „The Aid by Trade Foundation follows an innovative approach in development cooperation. Rather than sending money to Africa, the Cotton made in Africa Initiative follows the principles of “social business” – as the name of the Foundation says, this is aid by trade, helping people to help themselves by means of commercial activities. The African smallholder farmers who have joined this initiative are partners on an equal footing.“

It is the target of ‚Cotton made in Africa’ to be able to deliver sustainable cotton, however not organic cotton. Their reasons are as follows: “There are other initiatives that focus on the cultivation and sale of organic cotton. But as it is still quite expensive to grow this cotton, in many cases it is not yet able to meet the requirements of the mass market, and remains a niche product for the time being. Big retail companies want to buy the cotton raw material at the lowest possible price, because consumers are normally not willing to pay more for it. Cotton made in Africa wants to sell as much African cotton as possible in the market, to improve the conditions of life of as many smallholder farmers as possible. So CmiA cotton has to hold its own in the mass market. Cotton made in Africa is not organic cotton.

*„This broad set of abilities makes FLO-CERT your perfect partner in developing truly sustainable supply chains based on shared values.”* FLO-CERT

But sustainable growing of the raw material is ensured – together with its partners, the initiative gives the farmers training in modern, efficient growing methods, with awareness of pesticide use, i.e. use of the minimum amount of pesticides. Rain fed cultivation and crop rotation is used. But the initiative works in close cooperation with the organic cotton organisations, for joint work to increase the sales of sustainably grown cotton.”

‘Green activists’ however also see some danger in these initiatives. Lars Wittenbrink, who did his Master thesis on „Nachhaltigkeitspotentiale der Outdoorbranche“ (Sustainability in the Outdoor industry), in his blog „Grüne Mode“ (green fashion): „[...]Is organic cotton nearly facing a strengthened breakthrough into the mass market after significant reductions in production quantity in the past? Rather not, unfortunately, as the textile giants primarily are not thinking of organic cotton when talking about ‘sustainable cotton’, but cotton from the contractual production systems Cotton made in Africa (CmiA) and Better Cotton Initiative (BCI). Their standards however are far from ecological agriculture and the social standards are restricted to a great extent on the prohibition of child labour and forced labour. CmiA explicitly rejects purchase prices for cotton above global market level (such as the Fair Trade concept).”

*„The textile giants primarily are not thinking of organic cotton when talking about ‘sustainable cotton’.”*

Lars Wittenbrink, „Grüne Mode“

A list of certified organic cotton suppliers are to be found via Fairtrade in the directory of ‘FLO-CERT’, the certifier for Fair Trade. ‚FLO-CERT’ stands for ‚Realizing the Value in Sustainability’ and describes itself as follows: „Our skill set spans the sustainability spectrum - from providing assurance about compliance with social and economic standards (such as Fairtrade Certification), to measuring the Product Carbon Footprint of products sold to consumers. This broad set of abilities makes FLO-CERT your perfect partner in developing truly sustainable supply chains based on shared values.”

The directory lists around 300 producers and merchants. One of the companies listed in the directory is the German yarn supplier BIMECO. The company writes on its website: „BIMECO is continuously developing its cooperation with suppliers using certified organic cotton and paying attention to fair working conditions. For this reason we can supply our customers with yarns in accordance with the Öko-Tex® Standard 100 and the Global Organic Textile Standard (GOTS), as well as arrange Fair Trade certified yarn for them.“ Bimeco is only an example of a growing niche that has set up a complete value chain for organic cotton right through to the consumer.

*„Cotton is the most sustainable and, therefore most desired fibre.“*

The initiative for sustainable cotton (isc)

The initiative for sustainable cotton (isc) provides a remarkably interesting approach. It developed a futuristic scenario for the year 2025 in a forum ‘The Future Of Cotton’. The report Cotton Futures uses four scenarios created for Fashion Futures as the basis to explore the future of the cotton industry. The complete report that was developed with the cooperation of numerous persons from organisations in the textile industry and retailers (i.a. Fairtrade Deutschland, Bremen Cotton Exchange, Better Cotton Initiative, Textile Exchange, Otto, Tchibo), is available on the website and has led to the following vision: „Cotton is the most sustainable and, therefore most desired fibre. Collective actions of stakeholders in the cotton industry ensure the fibre makes a positive impact on people and the environment along the value chain.”

There can hardly be a better conclusion to the efforts on sustainability and so we turn to man-made fibres. Is it at all justified that fibres based on fossil oil can claim to be sustainable? Well, at least one vision could be created in the form of complete recycling leading to a situation where less and less or no ‘fresh fossil oil’ needs to be injected into the production process. This however is probably to remain a remote vision.

Filament production experts concerned themselves with the much more up to date topic of sustainability in November 2012 at the conference at Università Carlo Cattaneo – LIUC in Castellanza, Varese, Italy, during the conference ‘The man-made fibres industry between globalization and sustainability’.

“Today sustainability has entered the domain of sales and competitiveness,” stated Maurizio Radici, vice president and COO of RadiciGroup and president of Assofibre Cirfs Italia at the conference. “The main focus of our group’s efforts is making sustainability a total systemic approach to the management of our businesses, at all stages in our production chain, from chemicals to plastics and synthetic fibres. Concrete action is needed, starting from the smallest responsible steps that each individual can take in his or her daily routine.

*„The main focus of our group’s efforts is making sustainability a total systemic approach to the management of our businesses.“*

Maurizio Radici, vice president and COO of RadiciGroup and president of Assofibre Cirfs Italia

Sustainability is an overall vision of corporate management and, for this reason, we need to be committed not only on the environmental front but also on economic, human, production-commercial and social levels.”

A press release describes the assessment of the conference on sustainability of the European fibre manufacturers: : „European fibre manufacturers are demonstrating a tangible commitment to sustainability. Evidence of this is the rising number and quality of man-made fibres produced with recycled materials, the greater use of renewable source energy, the growing use of biopolymers, the reduced amount and greater recycling of production rejects and the fact that non-recyclable waste from man-made fibre textiles can be efficiently incinerated to generate energy. What is more, compared to Asian production, the production of man-made fibres in Europe is less energy intensive, because of more innovative and efficient plants, as well as energy sources that produce fewer emissions.”

So let’s leave the raw materials and fibres and go one step further along the textile value chain and turn our attention to the production process of textiles.

Here the large potentials in the field of energy-intensive yarn production are the spinning process and the finishing process of the dye works and textile finishing.

The pioneer for improved sustainability in spinning is the market leader Oerlikon, who has set the standards for many years now with their e-save strategy and extensive research to make their machines more and more energy efficient. Since energy is the largest cost factor in the spinning process, the target to pursue sustainability here leads also to competitive advantages when producing yarn. In the past years, Oerlikon has reduced the energy consumption of some newly developed machines drastically to 50%. On the trade fair India ITME in December, the company pointed out one special process in particular the masterbatch dyeing process with the Oerlikon Barmag 3DD mixer as part of their sustainability drive. It can alone save very much energy just with innovation.

Oerlikon comments: „A piece dyeing process requires around 30 times as much energy as masterbatch dyeing processes, while also emitting approximately 30 times the amount of CO<sub>2</sub>”.

A further model company on the sustainability issue is the German company Groz-Beckert that already received the Korea-EU Award in the category „Green Pioneer“ in November.

At Groz-Beckert, sustainability and energy efficiency are integral components of global strategy. The company provides its customers with intensive support in order to increase productivity and reduce energy and CO<sub>2</sub> emissions. One highlight in this regard is the litespeed® needle for high-performance circular knitting machines. It enables energy savings of up to 20 percent - without the need for any additional investments or modifications. Replacement of the existing knitting machine needles with litespeed® needles is all that is required.

In Korea alone, seamless application of the litespeed® would result in a CO<sub>2</sub> reduction of 10,500 t. This roughly corresponds to the annual emissions caused by around 9,000 average cars each traveling 10,000 km a year.

In the finishing process, we had already presented the energy efficient machines, such as for example tenter frames from the Germany companies Brückner and Monforts, as well as the more environmentally friendly dyeing machines of the Germany company Thies.

Clariant opened up a new level of performance to the outdoor gear and equipment markets with the launch of fluorine-free water repellent Arkophob® FFR and has been honored for its Advanced Denim technology by ICIS. (You can find out more about Clariant's sustainability strategy also in the → interview with Emrah Esder). Huntsman Textile Effects and DuPont Alliance had launched the innovative product – OLEOPHOBOL® CP-U that delivers maximum performance with minimum environmental footprint for the automotive and upholstery segments. A collaboration between Proviron and Reverdia has resulted in the introduction of Provichem® 2511 Eco, a Di-Methyl-Succinate (DMS) that can be used as a solvent and a raw material for fine chemicals such as pigments and UV stabilizers.

*„In ten years, the use of innovative machinery and plants will in fact allow these savings to be doubled.”*

VDMA

That innovations in finishing do not have to come from the chemical industry or machine manufacturers, is proven by the spinning works Schöeller from Austria. Schoeller is the 2012 winner of the Vorarlberg Innovation Award for its “sustainable production“. The spinning and dyeing company was distinguished for its novel chlorine-free EXP 3.0 wool finishing. This novel and also water-saving finish has been elaborated during several years' research by Schoeller in cooperation with the University of Innsbruck (Austria).

The Germany association VDMA focuses mainly on innovation and information with its Blue Competence Initiative. On the initiative webpage we learn: „Compared with the level of consumption in 2000, the products manufactured by the mechanical engineering industry today are already allowing energy savings to be achieved which are equivalent to the electricity demand of all 48 million households in Germany, Austria and Switzerland! In ten years, the use of innovative machinery and plants will in fact allow these savings to be doubled.” Using best practice models, the VDMA informed comprehensively at the ITMA ASIA, how sustainability can be achieved by investing in innovation and how such models can also make economic sense due to their higher energy efficiency.

Also the Italian association ACIMIT is pushing its „green label“ forwards. The association's "Sustainable Technologies" project took another important step forward in its development, obtaining a certificate of conformity for the ACIMIT green label. Subsequently, the Association chose RINA ([www.rina.org](http://www.rina.org)), an international certification body, to define and validate the process for issuing the ACIMIT green label. Manufacturers participating in the "Sustainable Technologies" project are in fact obliged to adhere to implementation measures and operating instructions on the measurement of energy and environmental performances declared by the green label.

Critics of the „green label“, however, point out that the energy consumption and the sustainability of a machine depends on so many parameters, such as for example the material used and above all also the employed energy mix, that one label alone cannot make a statement about the sustainability of production. That is correct, but many manufacturers also point out the special energy efficiency of the machine often referring to the previous model.

In the end up, the associations' aim must be that Life Cycle Analyses performed by third parties do not operate with false assumptions, but rather that the associations develop and provide processes and tools to use the energy of defined production processes with defined material use. Taking the energy mix into consideration, the value of the carbon footprint must be ascertainable.

In the end, the aim must be, and that is where the developments are leading in the medium-term, to add up the values for CO<sub>2</sub>, energy consumption, water and chemicals used for each textile end product in every sub-process of production arriving at a total value.

In the garment production sector, there is a different aspect of sustainability that is becoming more and more important, since here the work is not primarily performed by machines, but by people. Only recently the dreadful catastrophe in Bangladesh demonstrated to us all how people are still being exploited and taken advantage of in the textile industry in some parts of the world, and how few make use of the work safety obligations, when they are strategically intended but not operatively put into practice. The failings were spotted by the safety inspection the case of the fire, but no consequent action was taken. An analysis by Wall Street magazines came up with the following result: „The inspectors that reviewed the Tazreen Fashions factory on behalf of a supplier of the US retail giant Wal-Mart Stores, had reported serious failings to the fire safety authorities. [...] Despite the warnings, the production lines of the factory were used to sew garments for Wal-Mart only weeks before the disaster.“

The reason that is nearly always given as to why a ‚code of conduct‘ for work standards and eligibility criteria of large retailers do not work, is basically the supply chain with its web of traders and middlemen as well as insufficient communication and flow of information in this network.

However, the consumers no longer accept these reasons and the damage to the image sticks with the large retailers and the brands that had their garments produced in such factories. And in times when the omni-availability of the Internet and of Cloud software provide every possibility to constantly control and manage the flow of goods and their scheduling, this reason is no longer really believable. Companies must also act, not just change their mind-set.

That is like asking, precisely in the area of work standards and the work conditions and wages involved, who will be first, and in the end it is a leap of faith that fair conditions also work in a market economy. Working conditions with 6 days 60 hour weeks and a state minimum wage that is not enough to feed a family or create some sort of ‚wealth‘ over a number of years, these models are being phased out. Of course, governments cannot adjust the minimum wages duly when they know that it will not take long before the production moves to another country. And so the companies cannot quote the state minimum wages because they are also well aware of this. Still, they do because they see themselves in competition with others that do not follow suit and demand fair conditions because they sell their goods over low prices.

H&M Sustainability Representative Helena Helmersson said on Germany television ARD, „I don't believe that we should control everything. The aim must be a very good cooperation with the suppliers“. Furthermore, the problem could not be solved by one company on its own, but only if all companies joined in.

So it can only happen with a concerted effort. And finding common ground is in each individual case rather difficult to achieve. That is also what the German newspaper Frankfurter Rundschau reported on the topic work safety obligations of sub-contractors. „Up until now, only the US giant PVH (Tommy Hilfiger, Calvin Klein) and the Germany textile dealer deutsche Tchibo have agreed to support the convention. C&A, the Zara parent Inditex, H&M and others are reluctant sometimes referring to the investments made in other information campaigns. PVH will, however, only invest if at least three other international brand producers come aboard.“

The questions that must be asked are: How large is the companies' image loss caused by such far-reaching, publicity of such reports? Isn't the purpose of the image gain through advertising contradicted by such reports?

*„The aim must be a very good cooperation with the suppliers.“*

Helena Helmersson, H&M Sustainability Representative

Are not at least some of the millions invested in advertising squandered because of this, and would it not be wiser to invest them elsewhere, precisely in such projects? It is up to the companies themselves to answer these questions.

It must also be clearly stated that it doesn't make much sense or solve the issue, if the companies' will to improve sustainability is denied and they are criticised as being „green-washers“ because of individual incidents – no matter how tragic these may be.

And so we continue with retailers and brands, but turn our attention to the positive reports. A lot of progress has been by the brands and retailers regarding more sustainability so that we can only present a small portion.

The Sustainable Apparel Coalition published its tool, the Higg-Index 1.0, for more sustainability in July 2012, and provides this free of charge. (see extra report). The following new members were registered by the SAC in 2012: Clariant, DyStar, the IWTO, Avery Dennison Retail Branding and Information Solutions (RBIS) a in 2013 ANN INC., the parent company of the leading women's specialty retail fashion brands Ann Taylor and LOFT, and LYCRA® brand owner INVISTA followed suit.

At November 13th 2012, the American Apparel & Footwear Association (AAFA) and the Sustainable Apparel Coalition (SAC) signed a memorandum of understanding (MOU) to further foster collaboration on key sustainability initiatives across the U.S. apparel and footwear industry.

UK retail giant Marks & Spencer (M&S) has joined the Greenpeace “Detox” campaign in October with a commitment to eliminate all releases of hazardous chemicals throughout its entire supply chain and products by 2020. And in November, the Spanish fashion company Zara explained that it would produce garments without chemicals that harm health and the environment by 2020.

The umbrella group Inditex, which includes Zara and also a series of other fashion brands, made a statement committing itself to a „Zero Pollution“ strategy. The German news magazine Spiegel quotes the chemical expert from Greenpeace Christiane Huxdorff as follows: „This is a milestone for clean textile production. The whole fashion branch must now follow the market leader.“

*„This is a milestone for clean textile production. The whole fashion branch must now follow the market leader.“*

Christiane Huxdorff, chemical expert, Greenpeace

It would appear that she is right with her bold statement, because in January first Uniqlo and then Benetton joined up. Greenpeace reported: „The biggest global fashion brand based in Asia, Uniqlo, and its parent company Fast Retailing Group, today committed to eliminate all releases of hazardous chemicals throughout its entire global supply chain and products by 2020, in response to Greenpeace’s global Detox campaign.” And one week later: “Here in Italy we are celebrating the latest Detox commitment, announced today by the Benetton Group, which owns brands such as Sisley, Playlife and most famously, the United Colors of Benetton.”

The outstanding conference on sustainability was surely the Sustainable Textiles Conference in Hong Kong in October that was hosted by Textile Exchange, EcoTextile News, Messe Frankfurt and Planet Textiles. Over 200 companies from all parts of the world participated, including heavy weights from various sectors, such as Adidas, Puma, Nike, C&A, H&M, Marks & Spencer, Otto, Bayer CropScience, Cotton Incorporated, Clariant, DuPont, Dystar, Huntsman, Ramatex, and Greenpeace, the SAC, Fairtrade, GOTS and OEKO-TEX.

Textile Exchange announced on the conference: „Presenters at the Sustainable Textiles Conference couched the environmental impact of manufacturing in dollar terms, emphasizing not only the cost of cleaning up after poor environmental practices, but also the potential cost to brand names. Putting a price tag on the environmental impact makes more people pay attention, said Reiner Hengstmann, global director of Puma Safe, a social and environmental responsibility department within Puma.

“With some people, [talk about environmental impact] goes in one ear and out the other,” he said. “You have to put it in terms of money for them to start to pay attention.” Hengstmann described the company’s creation of an “environmental profit and loss account” estimating the environmental impact of greenhouse gas emissions, water use, land use, air pollution and waste. Puma estimated that the company’s “EP&L” generated by its supply chain totaled 145 million euros, or \$188.6 million, a year in 2010. Within that total figure, Hengstmann said, much of the impact came from lower-tier suppliers. So Hengstmann suggested sourcing from more “low-impact countries,” using environmentally efficient suppliers, consolidating material purchasing and reducing the amount of styles being made. The EP&L program is to be rolled out across other brands within PPR, which owns Puma, Hengstmann said. PPR also owns luxury brands such as Gucci, Yves Saint Laurent and Bottega Veneta, as well as sport brands such as Tretorn.

*“With some people, [talk about environmental impact] goes in one ear and out the other.”*

Reiner Hengstmann, global director of Puma Safe

And there is gratifying progress to report also regarding the [quality] seals. Up until now, there were just seals for certain areas in the huge jungle of seals, such as for example GOTS for environmentally friendly production, Fairtrade for the social aspect and Oekotex 100 for consumer tolerance. In January Ökotex announced a seal that will consider all areas. The new certification system with the name ‚Sustainable Textile Production (STeP) by OEKOTEX ®‘ will be presented to the public for the first time at the Prime Source Forum in Hong Kong on 26 March 2013 and will replace the current OEKO-TEX® Standard 1000. The launch for the STeP certification is planned for the presentation of the OEKO-TEX® Sustainability Award in Frankfurt on 12 June. From this date on the OEKO-TEX® Association will be able to carry out the first certifications of production facilities. “The heart of the new STeP certification”, explained OEKO-TEX® Secretary General Dr Jean-Pierre Haug, “is the modular analysis of all relevant company areas such as quality management, use of chemicals, environmental protection, environmental management, social responsibility and health and safety. As the certification tool is specifically tailored to the situations in the individual processing stages of the textile and clothing industry, it can provide interested companies with targeted support for continuous improvement of their production conditions.” Precondition for certification is the successful auditing of the production facilities through one of the OEKO-TEX® institutes.

The assessment in how far STeP certified companies are already working sustainably is made on the basis of a scoring system by means of a web-based process. In order to create widespread acceptance for the new STeP certification from the start, the aim is to include as many interested parties as possible – brand manufacturers, production facilities, retail companies, associations and NGOs – with regard to the weighting of the individual modules for assessment of sustainability.

With that we would like to close our little update on sustainability in the textile industry in 2012.

*“The heart of the new STeP certification is the modular analysis of all relevant company areas such as quality management, use of chemicals, environmental protection, environmental management, social responsibility and health and safety.”*

Dr Jean-Pierre Haug, Secretary General, OEKO-TEX®

For the current year, we cast a glance in the crystal ball and see that, in the wake of the large brands and market leaders, further companies will decide to anchor the topic of sustainability in their corporate strategy, join committees and participate in the numerous conferences.

It would certainly be desirable that as many companies as possible participate in developing and adopting joint solutions and then operate sustainably together on the same level in such a way that sustainability, quasi as an axiom, can be eliminated from competition. That will probably not quite happen in 2013, but the point is to lay the groundwork and advance progress in this important field because everyone knows and has understood where the industry is heading.

And for those who still do not really understand or would like to learn more, there are again this year numerous events where they can inform themselves comprehensively. For example on the Eco Summit of the Munich Fabric that starts on 06 February in Munich, Germany, in the Workshop on Textile and Apparel Sustainability in NYC on 19 and 20 March, on the Techtexil in Frankfurt, Germany in June, at Planet Textiles 2013: The Sustainable Textile Event in Shanghai, China in October and at the 2013 Textile Sustainability Conference in Istanbul, Turkey in November.

**Further information is available under the links listed below.**

<http://www.baumwollboerse.de/>

<http://www.itmf.org>

<http://www.cottonusa.de/>

<http://www.cottoninc.com/>

<http://www.cotton.org>

[http://textileexchange.org/2011\\_organic\\_cotton\\_market\\_report](http://textileexchange.org/2011_organic_cotton_market_report)

<http://www.greenpeace.de>

<http://umweltinstitut.org>

<http://www.fairtrade.net/cotton.html>

<http://www.flo-cert.net>

<http://bettercotton.org>

<http://www.cotton-made-in-africa.com>

<http://futureforcotton.de/>

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<http://www.sustainable-cotton.net>

<http://www.radicigroup.com>

<http://www.monforts.com>

<http://www.e-save.oerlikontextile.com>

<http://www.groz-beckert.com>

<http://www.schoeller-wool.com>

<http://www.vdma.org>

<http://www.bluecompetence.net>

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<http://www.apparelcoalition.org>

<http://www.facebook.com/apparelcoalition>

<http://textileexchange.org>

<http://www.facebook.com/TextileExchange>

<http://www.sustainablebrands.com>

<http://roadmaptozero.com>

Texdata Magazine  
2014-1

## *Sustainability 2014:*

# The textile industry has a change of heart

by Oliver Schmidt

„As always, our first edition of the year contains our traditional report on changes relating to sustainability along the textile value chain. We'll take a look back over the past year 2013 and venture a glimpse into the future of what 2014 will hold in the spirit of sustainability.

As the word sustainability can have many different meanings, we'll briefly say a few words on our understanding on it. Sustainability or sustainable development can be understood in the sense of the definition given in the Brundtland Commission of the United Nations on 20 March 1987: "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."



You will perhaps remember that we started our reports on sustainability in line with Kofi Annan's desire for the textile industry and global industry in general to change the world. More than two years have passed since then, and we can start our report by saying that sustainability has been very well received in all sub-branches along the textile value chain and is also taking on ever greater importance here. But there is still a long way to go. And the processes and procedures, which are already going through a positive change, will most likely still need a long time until they lead comprehensively to significant results.

This can be illustrated easily using a current example. Greenpeace published an announcement on 14 January 2014 that they had once again found traces of toxic substances in children's clothing in a study.

*„Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.“*

Brundtland Commission of the United Nations

Word for word: „Every brand tested was found to have products containing hazardous chemicals. Among the results one adidas swimsuit contained higher levels of PFOAs than permitted in their own Restricted Substance List [6], while printed fabric on a Primark children's t-shirt contained 11% phthalates. Meanwhile, NPEs were detected in at least one article from every brand with high levels in products made by brands including Disney, American Apparel and Burberry. Once released into the environment, many of these chemicals can have adverse impacts either on human reproductive, hormonal or immune systems.“

H&M, as one of the firms affected, whose clothing was named in the study, responded promptly, stating that the item of clothing in question was produced in 2012 and had therefore not been manufactured to the new guidelines. Furthermore, H&M stated: „The levels of PFC that Greenpeace claim to have found in the tested H&M garment were not restricted by H&M at the time of production, nor do they violate any EU restrictions levels. In addition, we have asked an external laboratory to test the exact same product and they have found far lower levels of the substance.

H&M has a ban on PFCs since January 1, 2013. This means that all orders placed from January 1, 2013 or later are produced without PFCs.

The tests that we have made on our products since then also verifies that products produced later than January 2013 are produced without PFCs.”

This current case shows clearly that changes require more time than it often appears, and it is very difficult to decide in individual cases what green washing is as alleged by Greenpeace and what is simply due to the time. It is clear that Greenpeace is staying on the ball and is even increasing the pressure. For the first time, social media including Twitter, Facebook and Instagram have also been used. These media make it possible for the environmental organisation to reach around 2 million people directly – a number that is still increasing thanks to the viral distribution through sharing and retweets. It is becoming difficult, if not impossible, to sit it out, and textile manufacturers, trade and brands cannot avoid the subject of sustainability.

And they most probably do not want to either. Sustainability is not just a trend, perhaps not even a major trend. Sustainability is a change of heart. If we look far into the future, we could expect that the first half of the 21st century will be about not further destroying the earth, whilst in the second half we will start repairing the damage that has already been done. Such a concept gives sustainability more structure and makes it clear that sustainability is not just an aspect of the economy, but rather its future.

Two of the major components of sustainable economic activity are environmental protection combined with low resource utilisation, especially finite resources, and social responsibility, which also includes decent wages and correct working conditions.



<http://about.hm.com/en/About.html>



<http://www.roadmaptozero.com>



<http://www.greenpeace.org>



<https://twitter.com/Greenpeace>

It is clear that in terms of these factors, some companies need to make much greater efforts to achieve sustainability than others.

This also goes for the textile industry. Here processes which use chemicals or water are especially affected by the environmental protection aspect, whilst the clothing industry, the actual cutting, making and trimming (CMT), is especially challenged by the social responsibility aspect. In addition, the production plants themselves are also affected, as it not particularly helpful to produce as energy-efficiently as possible only then to have to include a bad CO<sub>2</sub> balance on the individual textile goods due to huge transport routes.

Let us first look at the environmental protection aspects. They primarily affect textile chemistry and the process of wet finishing with dyeing and drying, as well as finishing items of clothing after completion, as is the case for denim products such as jeans, for example. And they also affect cotton production, as fertilisation, plant protection and irrigation play an important role here.

## Textile chemistry

There are therefore unsurprisingly most changes in the textile chemistry segment. The major chemical manufacturers for textile manufacture, such as BASF, Huntsman, DyStar and Archroma, which has emerged from the sale of Clariant's textile chemistry division, are developing new, environmentally friendly solutions.

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*“The combination of Gentle Power Bleach™ and AVITERA® [..]not only helped ATB reduce utility and water consumption, it has a lower environmental impact and is a clear demonstration of how collaboration across the textile supply chain can make a positive difference.”*

Steve Gray, vice president of Marketing and Strategic Planning, ATB

This is often also with partners from the mechanical engineering sector for textile finishing such as Thies, Fongs and Karl Mayer or in cooperation with smaller companies which have developed innovative solutions and processes.

Let us have a look at a few such innovations. In February 2013, Huntsman reported an expansion of its AVITERA® SE spectrum to include Light Red SE for Pale Shades. AVITERA® SE is Huntsman Textile Effects' innovative flagship dye technology for exhaust application on cellulosic fibers and is tailor-made to help businesses make real economic and environment savings. They said: “With dyeing and washing-off processes never exceeding 60°C, AVITERA® SE helps textile mills increase production outputs and significantly reduce water and energy consumption and carbon emissions by up to 50 percent. Using only five percent or less unfixed dye instead of the conventional 15 to 30 percent, AVITERA® SE greatly reduces the number of rinsing baths required to obtain fastness properties.”

In March 2013 AVITERA® range scored an impressive stellar 5-star rating review (out of a possible 5) in the The Environmental Leader Technology (ELT) review program. Also in March Huntsman Textile Effects launched the PHOBOTEX® range of fluorine-free rain protection and stain management products. The PHOBOTEX® range is entirely complementary to the existing range of Phobol® CP short-chain C6 fluorocarbons, sold under the Teflon® trademark.

This launch further extended Huntsman's comprehensive range of stain management and durable water-repellent products that are fully aligned with many industry benchmarks, including OEKO-TEX, bluesign, aligned with the Zero Discharge of Hazardous Chemicals (ZDHC) joint roadmap and listed chemicals and substances from the Restricted Substances Lists (RSL). PHOBOTEX® are an advanced and comprehensive range of fluorine-free hydro polymers, specifically developed to specifically protect a wide range of textile end-uses against rain and every day stains from ketchup and red wine to mud and grass.

In collaboration with DuPont Industrial Biosciences , Huntsman announced in October 2013 the results of a case study that demonstrates the superior performance of Gentle Power Bleach™, powered by DuPont's first-to-market enzymatic bleaching technology, DuPont™ PrimaGreen® EcoWhite.

The study, conducted between 2006 and 2012, measured significant reductions in water use, energy consumption and chemical use coupled with notable increases in product quality and yield. Portugal's Acabamentos Têxteis de Barcelos (ATB), the nation's leading knitwear dyeing and finishing specialist and one of the largest textile mills in Europe, introduced this technology to their facility with the goal of increasing performance while using fewer resources.

According to a new case study, it worked; between 2006 and 2012, the case study measured an increase in production of 3,380 tons in 2006 to 4,409 tons in 2012, a reduction in water usage of 55 cubic meters of water per ton of fabric produced and a reduction in use of chemicals per ton of fabric produced: 0.55 in 2012 as opposed to 0.74 in 2006.

Steve Gray, vice president of Marketing and Strategic Planning, said the following: "The combination of Gentle Power Bleach™ and AVITERA® [...]not only helped ATB reduce utility and water consumption, it has a lower environmental impact and is a clear demonstration of how collaboration across the textile supply chain can make a positive difference."

And he also emphasised once again the importance that environmental sustainability has gained in textile chemistry. "The textile industry is undergoing a major push toward greater accountability and sustainability. At Huntsman, we believe that any product we develop needs to be both economically and environmentally sustainable," he said.

These examples show that innovation and research make it possible to develop more and ever better chemicals and processes which can supersede their environmentally harmful and toxic predecessors.

Whilst it was previously just individual processes, Huntsman went one step further at the annual Planet Textiles conference on 22 October in Shanghai. The company presented a high-level overview covering the current environmental issues facing the textile dyeing sector in Asia and introduced a list of dyes and chemicals which do not intentionally contain any of the priority chemical groups under the Joint Roadmap: Towards Zero Discharge of Hazardous Chemicals (ZDHC).



<http://biosciences.dupont.com>



[http://www.huntsman.com/textile\\_effects](http://www.huntsman.com/textile_effects)



<http://www.atb.pt>



<http://www.planet-textiles.com>

With this list, the textile supply chain is now able to supply textiles to companies that have signed up to the 'roadmap', thereby helping to improve environmental performance and economic sustainability.

This is a major step. Production in accordance with ZDHC is thus, according to Huntsman's statement, already technically possible.

Let us look at another major chemical manufacturer: BASF. In May BASF announced that it has successfully completed the second phase of registration for REACH under EU chemical law. REACH stands for the Registration, Evaluation, Authorization and Restriction of Chemicals and represents a fundamental reorganization of chemical law in Europe.

REACH requires the registration of all substances manufactured or imported in the EU in quantities starting from 1 ton/year. Producers and importers have the responsibility to demonstrate the safe use of the chemicals in the intended applications based on their hazardous properties, uses, exposures and volumes. Use of a substance will be legal only in registered uses. During the second phase of registration for chemicals with a production volume between 100 and 1,000 metric tons per year BASF submitted around 550 substance dossiers to the European Chemicals Agency (ECHA) – more than any other company.

*“Our innovative tools and a variety of market-specific sustainability approaches help industries produce their goods more sustainably and increase their brand value significantly,”*

Dr. Dirk Voeste, BASF

The near future of textile chemistry for BASF is certainly in Asia. In March, the company announced already: „BASF will re-shape its Leather and Textile Chemicals business with increased focus on the growing Asia Pacific region and high value-adding applications such as applications for the leather automotive industry and premium textile articles. The global R&D activities for both businesses will be established in Shanghai, China.”

At BASF, it is quickly becoming clear that textile chemistry is one of many divisions of the company and that the sustainability strategies at group level are developed for all divisions. For example the company had been a major sponsor of the first European Sustainable Brands Conference in London on 27 – 28 November 2012.

“Our innovative tools and a variety of market-specific sustainability approaches help industries produce their goods more sustainably and increase their brand value significantly,” explained Dr. Dirk Voeste, who is responsible for BASF's sustainability strategy. “A good example is SET, the company's sustainability initiative for the nutrition and health industries.”

Another example which illustrates that BASF can achieve an increase in sustainability, even at the very foundations, with its excellent research and networking, is the following. In a research cooperation the company developed an innovative technology for environmentally sustainable syngas production from carbon dioxide and hydrogen. Together with Linde Group and ThyssenKrupp They aim to employ innovative process technology to use carbon dioxide as a raw material, with positive effects on climate protection. In the first step, an innovative high-temperature technology will process natural gas to obtain hydrogen and carbon. Compared to other processes, this technology produces very little CO<sub>2</sub>. The hydrogen is then reacted with large volumes of CO<sub>2</sub>, also from other industrial processes, to give syngas.

A mixture of carbon monoxide and hydrogen, syngas is a key raw material for the chemical industry and is also suitable for producing fuels.

Another example is that BASF plans the production of butanediol from renewable feedstock licensing and using the patented Genomatica technology. The one-step fermentation process is based on sugars as a renewable feedstock. “We chose the Genomatica process because we consider it to be exceptionally advanced and reliable,” said Sanjeev Gandhi, President of BASF Intermediates division, and added: “In line with our ‘We create chemistry’ strategy, we aim to offer renewable BDO and create additional value for our customers, in the plastics, textile and automotive industries.” BDO and its derivatives are widely used for producing plastics, solvents, electronic chemicals and elastic fibers. For the production of conventional BDO the starting materials are natural gas, butane, butadiene and propylene.



<http://www.genomatica.com>



<http://www.performancechemicals.basf.com>



[http://ec.europa.eu/enterprise/sectors/chemicals/reach/index\\_en.htm](http://ec.europa.eu/enterprise/sectors/chemicals/reach/index_en.htm)



<http://www.sustainablebrands.com/events/sblondon13>

And there are also sustainability efforts by BASF which relate specifically to the textile industry. Worthy of mention here in particular is the cooperation between BASF and bluesign, which was announced in July. In the message “BASF adopts bluesign® system for safety and environmental protection in textile chemicals”, it was announced: “The textile chemicals product portfolio of BASF is fully compliant with strict consumer safety requirements, for example, the Oeko-Tex Standard 100, and the Restricted Substances List of major retail brands, which are based on stringent global regulations.

In addition, BASF takes this one step further by incorporating several voluntary restrictions on substances. With the adoption of the bluesign® system, BASF provides additional assurance to textile mills, brand owners, and other members of the textile value chain. “

Lütfü Okman, Vice President of Global Business Management, Textile Chemicals, BASF South East Asia, commented the cooperation as follows: “This cooperation with bluesign technologies is aligned with our commitment to ‘Putting FUTURE into Textiles’, through high standards in environment and safety.”

Let us briefly look at the other major suppliers of chemicals.

1 October marked the official launch of Archroma, and the company announced: Archroma is delighted to announce its official launch today as a newly formed global color and specialty chemicals company that comprises the former Textile Specialties, Paper Solutions and Emulsion Products businesses of Clariant.



<http://www.clariant.com>



<http://textiles.archroma.com>



<http://www.icis.com/awards>

From fiber to finish, Archroma's Textile Specialties Business plays a key role throughout the entire textile supply chain, with special chemicals for pre-treatment, dyeing, printing and finishing of textiles. Product packages enhance the properties of apparel and other textiles in applications as diverse as high fashion, home textiles and special technical textiles.

The procedures, chemicals and processes developed by Clariant and taken over by Archroma were already presented in the previous reports. It should also be noted that the ONE WAY service won the ICIS Award 2013 in the 'Best Business Innovation' category.

Archroma's ONE WAY was launched in October 2012 to help customers meet their sustainability targets in a fast and reliable manner. It is a 3-step systematic approach to the selection of chemicals and production processes that once completed, gives customers calculation results that assess the cost, performance and environmental profile of the evaluated products and processes.



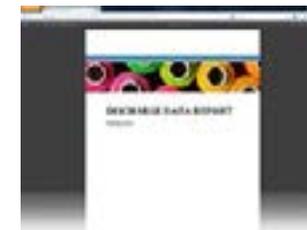
<http://www.dystar.com>



<http://www.epea.com>



<http://www.arvindmills.com>



[http://www.c-and-a.com/uk/en/corporate/fileadmin/mediathek/uk-uk/Pressreleases/CSR/Site/Discharge\\_Report.pdf](http://www.c-and-a.com/uk/en/corporate/fileadmin/mediathek/uk-uk/Pressreleases/CSR/Site/Discharge_Report.pdf)

DyStar also continued its sustainability efforts in 2013 and announced a few interesting improvements and collaborations. DyStar announced in May 2013 that its Sustainable Textile Solutions (STS) is a rapidly-growing business division of DyStar and acted as a service provider for the "Discharge Data Report" that was recently launched by C&A, H&M and G-Star raw. As part of the Joint Roadmap, C&A, G-Star and H&M released a "Discharge Data Report" in February 2013. This reports the results from a pilot study which lasted almost a year, and which aimed to verify whether any chemicals from the 11 priority chemical groups could be detected in the wastewater discharge of selected factories in China, Bangladesh and India. Sustainable Textile Solutions' expert knowledge and experience of coloration chemistry and textile processing supported this benchmark study through an on-site audits, chemical inventory assessment and interpretation of analytical data.

DyStar also announced tangible results for the implementation of sustainable processes, such as the cooperation with the Indian Arvind in July, for example. DyStar Indigo Vat 40% Solution will be used at all Arvind Denim Manufacturing facilities.

Dedicated teams from DyStar and Arvind Limited Denim Division will work closely together to implement new technologies in indigo dyeing and finishing as well as develop new products, processes and effects for denim fabrics and garments. DyStar Indigo Vat 40% allows a cleaner denim production and a reduction of the Sodium Hydrosulfite usage by 60%-70%.

And also in July the company announced that DyStar® has been cooperating with EPEA Internationale Umweltforschung GmbH since early 2002, in order to apply aspects of the Cradle to Cradle® Design Concept on certain DyStar® products. DyStar® has submitted various product data which have been assessed by EPEA according to EPEA's specific criteria and which result in a "Positive-List" (project related, not publicly available). They include chemicals, materials and auxiliaries which are at least tolerable for inclusion in a Cradle to Cradle® product according to its intended use, depending on available toxicity data.

And that covers textile chemistry. The excerpt of examples shows that textile chemistry as a whole is keeping its efforts very high, in order to offer textile companies new, environmentally friendly solutions and therefore also to be able to implement the demands of major brands.

And an increasing number of textile companies are also using the consultation and certification services of bluesign and Oeko-tex.

## Consultation and certification services

We already briefly introduced the Oeko-tex certification process STeP last year (see TexData Magazine issue 1 / 2013). As announced, the official launch took place at Texprocess 2013 in Frankfurt. 'Sustainable Textile Production (STeP)' is the new OEKO-TEX® certification system for brands, retail companies and manufacturers from the textile chain who want to communicate their achievements regarding sustainable production to the public in a transparent, credible and clear manner. Certification is possible for production facilities of all processing stages from fibre production, spinning mills, weaving mills, knitting mills to finishing facilities and manufacturers of ready-made textile items.

STeP replaces the previous OEKO-TEX® Standard 1000. The objective of STeP certification is the permanent implementation of environmentally friendly production processes, optimum health and safety and socially acceptable working conditions.

The dynamic further development of the STeP standard and the benchmarks allows certified companies to continuously improve their environmental protection achievements and their social responsibility as well as their efficiency. This in turn enables them to achieve the best possible competitive position on the market.

The prerequisite for STeP certification is the compliance with certain minimum requirements in the individual company areas. Relevant issues are management of chemicals, environmental protection, environmental management, social Responsibility, quality management and health and safety. The individual requirements as well as plenty of additional information are cited on a website set up especially for Step certification (<https://step.oeko-tex.com>). They are extensive and demanding. One example is a requirement from the subject area of environmental protection: ‘Use of best available production technologies’.

This implies that a textile company wanting certification must have a high level of willingness to invest – though the term ‘best available’ is certainly rather elastic here. In addition, there is a differentiation of how the result of the certification turns out. STeP certification encompasses three different levels describing the extent to which the company has achieved sustainable production and working conditions. Level 1 is the entry level, level 2 means a good implementation with further optimisation potential and level 3 is an exemplary implementation in the sense of a best practice example.

Oekotex says that the STeP scoring creates more transparency because it allows the sustainability of production facilities along the textile value chain to be compared on all relevant company levels across country borders and beyond legislative regulations.



<http://www.bluesign.com>



<http://step.oeko-tex.com>



<http://textileexchange.org>



<http://www.baumwollboerse.de>

The detailed representation of the assessment results allows a sound definition of the company's positioning with regard to sustainability and illustrates in particular which company areas have further potential for optimisation. Das klingt nachvollziehbar und auch praktikabel.

On 18 July, the first company was certified. Oekotex announced the following: „The Swiss yarn manufacturer Hermann Bühler AG was the very first company worldwide to receive a certificate for sustainable textile production in line with the certification system “Sustainable Textile Production (STeP) by OEKO-TEX®”, which was developed by the International OEKO-TEX® Association.” In September, the first certification under STeP was then awarded to a German company. Hohenstein Institute certifies the exemplary social responsibility and exceptionally sustainable production at Mattes & Ammann GmbH.

“The result achieved by Mattes & Ammann”, explains OEKO-TEX® auditor, Ortrud Weber, of the Hohenstein Institute, “far surpasses the basic requirements for STeP certification and is at a level that reflects current best practice.” At the end of January 2014, Oekotex listed a total of eight certified companies. In addition to the companies already mentioned, there is also eterna Mode and Gebrüder Otto Baumwollfeinzwirnerei from Germany, the Swiss weba Weberei Appenzell, Pascual y Bernabeu from Spain, as well as eterna once again and Zornica Banko Fashion from Slovakia.

A very recent further development of the STeP systems is mySTeP. The new tool will probably be launched on the market from the summer of 2014. It can be used by all interested companies in the textile industry, regardless of whether they have OEKO-TEX® certification.

After successful setup of a MySTeP account, companies can contact STeP certified production plants within the system and request the release of their data.

The STeP plants decide whether data is displayed to the requesting dashboard user, and if so, which data the user sees. This can include, for example, the complete contact data and the type of production (spinning mill, weaving mill, finishing facility or manufacturer of ready-made clothes), the validity period of the STeP certification and the total score and evaluation of the operation's individual company areas. On request, the STeP certified suppliers can also release the display of additional information such as the audit report from the test institute responsible.

Oekotex has further toughened the requirements of the Oekotex Standard 100. The new regulations come into force on 1 April 2014 for all certifications, following a three-month transition period. For example the specifications for perfluorooctanic acid (PFOA) will become much stricter and four longer-chained, perfluorinated compounds will also be included in the criteria catalogue with the same limit values as PFOA. The reason behind this is the inclusion of the chemicals in the ECHA Candidate List with substances of very high concern (SVHC) as part of the REACH legislation.

With these two measures, OEKO-TEX® is specifically supporting the „Zero Discharge of Hazardous Chemicals (ZDHC)“ initiative of international brands and retailers that have committed to excluding hazardous chemicals from the production process by 2020. Furthermore, Oekotex provides information about additional toughening and innovations on its website.

We already reported extensively on bluesign in the 1 / 2012 edition. bluesign® considers the production processes as a whole. Therefore, the applied components and processes are thoroughly audited. The aim of our so-called Input Stream Management is for unsustainable substances not to enter the production cycle at all, but to be eliminated first. The crucial point is not the number of manufacturers involved or the number of processing steps. A clean process with sustainable ingredients is decisive at the end of which a marketable product enthralls the customers. In 2013, bluesign was able to gain the services of many new companies from the sectors of brands, manufacturers and chemical suppliers. In addition to the heavyweight BASF already mentioned, from the brands sector this includes Schöffel Sportbekleidung (Germany), ZANIER Sport (Austria) and XD Apparel (The Netherlands), from the fibre manufacturer sector this includes Noble Biomaterials (USA) and Shun Jin Industrial (Taiwan), from the chemical suppliers sector this includes Setas Kimya Sanyai (Turkey) and NICCA CHEMICAL (Japan) and in the textile manufacturers there is Yaw Liamy Enterprise (Taiwan), BRISTEX CO. (Korea), Pratibha Syntex (India) and Feinjersey Betriebsgesellschaft (Austria).

This internationality shows that sustainability covers all textile-producing countries. One reason for this is certainly that brands and retailers are building up a certain market pressure towards greater sustainability.

## Events & Conferences

One of the most important events of last year on the subject of sustainability took place in Istanbul in November. In the last edition of the magazine, we already reported on one of its focus topics, “Recycling”. The 2013 Textile Sustainability Conference hosted 300 delegates representing the entire textile industry from farmers, manufacturers, input suppliers, brands, and retailers from 40 countries.

Conference attendees, including TE members, represent a driving force for creating meaningful change in the textile industry.

The conference focused on five key themes: Strategy, Sourcing and Supply Chain, Indexes and Standards, Design and Materials, and Chemistry and Processing. For the first time in TE conference history, the sessions were designed to facilitate collaboration, giving attendees the opportunity to co-create solutions. The mix of topics, collaborative working sessions, and people brought both old and new topics to life.

The three days of learning and collaboration began with the 2nd annual Organic Cotton Round Table meeting where 100 delegates gathered to have an in depth discussion and to create action items around the organic cotton business model, seed security, and consumer engagement. Regarding the conference as a whole, Phil Chamberlain from C&A stated, “You captured the mood of what is important and what is developing in the sustainable business development space, and once again clearly demonstrated that TE remains the heartbeat of the organic cotton movement.”

Following the Round Table meeting were two full power-packed days of conference that brought forth many priorities from the pool of challenges and opportunities. Over the coming year, Textile Exchange will explore a few of these priorities, including Natural versus Synthetic Biology, Closing the Loop, Strategies for Cotton Sustainability, and The Evolution of Integrity.

*“ITMA has always been a catalyst for industry competitiveness for over 60 years. Besides the mindset change, we believe that innovative technologies hold the key to environmental sustainability.”*

Ms Sylvia Phua, CEO of MP International

Following the classification of the key issues, we have focussed especially on reporting on the subjects of chemistry and processing as well as sourcing and supply chain in this article. We already reported on the subject of cotton from a sustainability perspective in the previous edition. Here, we are also expecting plenty of new stimuli from the Bremen Cotton Conference in March, which is giving more attention to the subject of sustainability and is one of the most important events in the cotton industry.

There are plenty more facts and news that can be compiled about the other topics, too. However, we would like to limit ourselves to just few developments by way of example.

In the Indices sector, as well as that of design and materials, the further development of the Higg-Index by the Sustainable Apparel Coalition is certainly worth mentioning. The Higg Index 2.0 is a tool to help organizations standardize how they measure and evaluate environmental performance of apparel products across the supply chain at the brand, product, and facility levels. The Higg Index 2.0 was released on December 11, 2013 and represents a significant step forward based on the work of their Members. It is a suite of sustainability assessment tools that anyone can get started with right away. These assessments, called modules, evaluate impacts through our three different lenses: Facility, Brand, and Product. The new version has been expanded substantially and has become simpler primarily in its handling thanks to its availability as a web tool.

On its website, the SAC declares the following: “ With the release of the Higg Index 2.0, the Index has reached a mature phase – the Higg Index 2.0 represents a pivot point where the SAC will now focus its resources on enabling widespread adoption of the Index instead of making wholesale changes to the Index. That said, the index will always evolve and improve over time.” A training video is also available.

In terms of the integration of sustainability in corporate strategies, there are a few initiatives which extend beyond the textile industry and affect more or less all industries.

One of these organisations is the World Business Council for Sustainable Development (WBCSD), whose membership list is more like a directory of the global economy. The WBCSD is governed by a Council made up of member company CEO’s or their representatives. This Council delegates the management of the organization to the Executive Committee.

The WBCSD is launching many initiatives relating to sustainability – for example, FLT 2014. The FLT 2014 will focus on Bridging the Capitals - Accounting for Natural & Social Capital in Business Decision Making. Working in group projects, participants will gain a better understanding of the importance of Social, Natural and Financial Capital, for instance by exploring how social and natural capital considerations can and should be incorporated into financial practices and corporate decision-making.

For this purpose, there are so-called action plans for 2020 and 2050. Regarding the 2020 plan, the website states: „Action2020 – Setting the pace for progress.

Can business be a positive force to solve global environmental and social issues? We say, “Yes” - and we’re backing it up with Action2020. Created by the World Business Council for Sustainable Development (WBCSD) and its member companies, Action2020 is our platform for sustainability in action.



<http://www.apparelcoalition.org>



<http://www.wbcd.org>



<http://global100.org>



<http://www.corporateknights.com>

It's the roadmap for how business can positively influence environmental and social trends while strengthening their own resilience to issues like climate change, demographic dynamics and skills shortages. Based on the latest scientific consensus, Action2020 sets an agenda for business to take action on sustainable development to 2020 and beyond."

Worth mentioning is certainly the "Global 100 Most Sustainable Corporations in the World (Global 100) index", which is published by the Toronto-based media and investment advisory company Corporate Knights. In its tenth year, the Global 100 index has come to be recognized as the gold standard in corporate sustainability analysis. Companies named to the Global 100 index are the top overall sustainability performers in their respective industrial sectors. In an announcement on the publication of the index in 2013, it was stated: "Inclusion in the Global 100 index is determined using twelve (12) quantitative sustainability indicators, including the amount of revenue companies generate per unit of energy consumption, the ratio of CEO to average worker salary and lost time injury rate.

"The Global 100 follows a rules-based index construction methodology," said Doug Morrow, Managing Director at Corporate Knights.

"We unpackage "sustainability" into its component parts, and build the index from the ground up using clearly defined ratios and performance indicators."

It is also interesting that there is an increasing number of companies in the textile industry which are developing an entire business model around the theme of sustainability. We will report on this further in a future edition.

Finally, let us take another look at the manufacturers of textile machinery. The importance that the subject of sustainability has now gained in the textile machinery industry can already be seen in just one example: the upcoming ITMA 2015 in Milan.



<http://itma2015.com>



<http://www.bluecompetence.net>



<http://www.aatcc.org/ic>



<http://www.iaruni.org/sustainability/sustainability-congress>

In July 2012 the owner CEMATEX has announced, that ITMA 2015 to drive sustainable innovations in textile and garment machinery. Mr Stephen R Combes, President of CEMATEX, said: “The drive towards sustainability is increasingly integrated with enlightened business practices. The keyword here is ‘sustainability’, and we hope industry members will join us in this responsible mission to promote more eco-friendly solutions and practices for the entire textile and garment value chain.” Miss Maria Avery, Secretary-General of CEMATEX, points out that the ITMA in Barcelona in 2011 already gave a great deal of attention to the subject of sustainability: “In 2011, we introduced several new ideas that have enhanced the participation of all stakeholders. They included the inaugural World Textile Summit and Sustainable Textile Leaders Roundtable Dialogue. These were immensely popular and we intend to continue with them.

We hope to further enhance the relevance and look at how we can better support the green theme.” And Ms Sylvia Phua, CEO of MP International which is organising ITMA 2015, added: “ITMA has always been a catalyst for industry competitiveness for over 60 years. Besides the mindset change, we believe that innovative technologies hold the key to environmental sustainability.”

The ITMA then followed up the announcement with actions in 2013 and now sends the quarterly ITMA Sustainability Bulletin, a report on environmental performance. This is a summary of a few key news items concerning the subjects of sustainability and the textile value chain, over 10 – 12 pages in English, Spanish, Chinese and Turkish. Whether this is the ideal solution as a value driver for more sustainability is certainly a hot topic.

Far more useful would be the idea of Cematex, to add a new sub-chapter, recycled fibres and yarns, to the fibres and yarns chapter created in 2011. Cematex expected that the fibre and yarn chapter will grow at ITMA 2015 in Milan. Together, all of this represents a new beginning, but one must ultimately expect more from CEMATEX, especially since individual associations such as the German VDMA have already been very actively promoting the subject with its ‘Blue Competence Initiative’ for a very long time now.

## Outlook

What can we expect in 2014 in terms of the further development of sustainability and what events are primarily worthy of mention? Let's start with the events. One of the most important events will certainly be the 2014 Textile Exchange Conference. 2014 which will take place in November 10-12, 2014 in Portland, Oregon, USA. For the first time, the conference will be 3 days instead of the traditional 2 days so delegates can have more valuable networking time.

At the AATCC's 2014 International Conference which will be held April 1-3 at the Crowne Plaza Resort in Asheville, NC, Xavier Vital from SGS North America will talk about "Sustainable Textiles Begin with a Sustainable Supply Chain" and Anja Gerhardts from Hohenstein Institute for Textilinnovation GmbH, Germany makes a speech about "New Approaches towards a Sustainable Textile Industry of Tomorrow".

The IARU Sustainability Science Congress, which will take place in Copenhagen, Denmark from October 22nd - 24th 2014 puts focus on research related to global sustainability issues. This international and solutions orientated congress invites experts across disciplines to break down academic barriers and jumpstart a broader collaboration on sustainable solutions relevant for society.

Also targeting businesses and policy makers, the congress aims to provide a platform for science-policy interface relevant for global challenges.

We will certainly find some interesting innovations at the ITMA Asia in June and at many other trade fairs such as Intertextile, Texworld or Techtexil North America in May.

And we can easily raise our expectations. More and more people with responsibility are recognising that the subject of sustainability is essential for the future of their company and that even the standards of consumers regarding ecological production and social responsibility are continuing to grow.

We will keep you up to date.

Texdata Magazine  
2015-1

# Sustainability gains momentum in the textile industry

by Oliver Schmidt

**F**or the 4th time we would like, in the first issue of the year, to give you an overview of what has been happening in the area of sustainability with regard to textile production over the last year, as well as our usual overview of the current year. Because the concept of sustainability still resonates differently with many people, we would initially like to define the concept of sustainability. Our definition is that which the Brundtland Commission provided to the United Nations on March 20th 1987: “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”



The Brundtland Commission is named after its chairperson, former Norwegian Prime Minister Gro Harlem Brundtland, who, in 1983 headed the United Nations World Commission for the Environment and Development. She had the assignment to indicate long-term perspectives for a third world aid policy which was also environmentally friendly. In her final document, commonly known as the Brundtland Report, “Our common future“, dated 1987, the basic concept of sustainable development is defined.

With the work of the Brundlandt Commission, the UN and the subsequent UN Conference for Environment and Development in 1992 devised a conceptual understanding of sustainability which was intended to unite varied political interests, and which treated environmental, economic and social development objectives equally.

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*“sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”*

Brundtland Commission

The word sustainability is used here as a set of objectives, creating permanently stable societies in which ecological, economic and social aims are not played against one another but given equal standing. This conceptual understanding of sustainability includes the aspiration that these aims are valid for all countries of the world (global justice), and for future generations too (generational equity).

Global justice was strongly based on the social principle of fair wages, while generational equity had the protection of the environment and the preservation of the Earth's ecosystem at heart.

The idea or principle of sustainability is 28 years old in 2015. In the opinion of UN Secretary General Ban Ki Moon, it has not been sufficiently implemented. At the United Nations Conference on Sustainable Development in Rio de Janeiro in 2012 he said: “The world summit in Rio made a mistake 20 years ago with regard to sustainability. And if I am honest, I must say that we haven't achieved much.”

The reason for this statement is as obvious as it is simple. Politicians initially attempted to solve the problem without recourse to industry because industry was seen as the cause of environmental damage and social injustice. However, sustainability cannot be implemented without

the involvement of the worldwide operating groups, particularly as for many governments, subjects such as employment and economic growth have, understandably, a higher value.

Over the course of time, the enterprises themselves have taken more interest in the subject of sustainability and have founded their own initiatives and organisations to move the subject further on. Such an organisation is, for example, the World Business Council for Sustainable Development (WBCSD), an organisation controlled by enterprise boards of directors which deals exclusively with the subject of “Economy and Sustainable Development“ and owes its formation to an initiative of the Swiss enterpriser Stephan Schmidheiny, a participant at the 1992 conference. The WBCSD provides a forum for enterprises in which they can exchange knowledge and experience with regard to sustainable development and propagate enterprise positions in cooperation with governments, non-governmental and international organisations.

How important the subject of sustainability is can be seen from these headlines: Population growth, world hunger, lack of raw materials, resource shortages, and to top it all, the unforeseeable effects of climate change.

*„The world summit in Rio made a mistake 20 years ago with regard to sustainability. And if I am honest, I must say that we haven't achieved much.“*

Ban Ki Moon, UN Secretary General

The WBCSD described the challenge as follows: „Global temperatures are increasing and science has confirmed that greenhouse gas emissions and other human activities have been the dominant cause of observed warming since the mid-20th century. There is international consensus that we must limit the increase in global temperature to no more than 2°C. If this is not achieved, the consequences of climate change will be disastrous for people, the environment and economies.

The transition to a low-carbon economy is the only way to secure sustainable economic growth and prosperity for all.”

While two degrees of warming sounds virtually harmless, the word “disaster” probably correctly describes the results. All industries are hereby requested to make a decisive contribution to prevent this disaster, and even if the textile industry is not one of the main culprits when it comes to its carbon footprint and the consumption of fossil resources, it has, as probably the most international industry, a very great responsibility, as well as a potential pioneering role.

*„...the consequences of climate change will be disastrous for people, the environment and economies. “*

WBCSD

For this reason, it is not a surprise that the subject of sustainability is increasingly of the highest significance along the textile value chain, and there should be no organisation, fair, conference or enterprise which does not have the subject right at the top of its agenda.

For the textile industry, the subject of sustainability has the following environmental aspects:

- + Reduction of the CO<sub>2</sub> footprint along the textile value chain
- + Reduction of air pollution
- + Reduction of water pollution
- + Reduction of pollution on land
- + Reduction of the use of finite resources
- + The establishment of closed loops with recycling and reuse of raw materials

We have described how and when the subject of sustainability found its way into the textile industry and which developments it has undergone over recent years extensively in the last three articles. Now we would like to peruse the latest events and developments on the subject. Beginning with fibres, we make our way down the textile production process, starting with the textile machine builders and the textile chemicals industry, then look at textile enterprises, brands and retailers and their activities and innovations on the subject. To conclude, we will briefly touch on the events and fairs, and venture a tentative look into the future.

## Fibers

Let us begin with the fibres, and more precisely with a natural fibre; cotton. The idea of sustainability here means cotton cultivation without appreciable burdens on land and excessive water use and irrigation methods. In addition, organic cotton may not be genetically modified. In the area of organic cotton, not much in the way of development has happened.

Even though the 2013 “Organic Cotton Report“ from the Textile Exchange, the main organisation for the support of organic cotton, boasts of optimism, it deals mainly with the superficial demands from the retail sector, while in the area of production, organic cotton is experiencing a decline.

*„The balance between declining production and increasing demand will have ramifications as we move into the coming years. “*

2013 “Organic Cotton Report“ from the Textile Exchange

In the light of this, and according to the Bremen cotton stock exchange’s annual report of 2012 which reported that less than 1% of worldwide cotton production is dedicated to producing organic cotton, sustainable production methods which seek a balance with Nature seem a long way off.

In addition, the increased use of organic cotton by leading brands and retailers makes clear that in the past, the organic cotton grown was not used in its entirety for production. A sobering thought.



In the 2009/2010 season, organic cotton production had risen by 38% to about 242,000 tonnes, only to fall back to 151,000 tonnes the following season. In 2011/12, worldwide production of organic cotton was estimated to be 143,600 tonnes, falling again in the 2012/13 season. The Textile Exchange's positive appraisal for the increase in organic cotton use is based on the increased demand from the large retailers and brands.

In the report it also says, for example: „The organic cotton sector is facing specific challenges with lack of seed availability and a miss-match between supply and demand. Despite these uncertainties, consumer demand for organic cotton is steadily growing. More and more brands have made commitments to use 100 percent organic cotton by ambitious target dates, often 2020.

New business models are being implemented through collaboration between big and small brands to develop strategies around organic cotton, and investments are being made in seed availability.“ And further:“The balance between declining production and increasing demand will have ramifications as we move into the coming years. Any fiber from years with high production will be absorbed and new demand could be an issue.

The solution to the supply/demand balance lies in having the business models that provide key market linkage. We spoke to several brands that have robust organic cotton programs, are projecting future growth and have confidence their supply chain can deliver.”



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How much demand has increased is made clear by the Top 10 list of organic cotton users by volume. In 2012, it took a minimum of 2 million pounds to gain entry into the Top 10. This year it took a minimum of 3 million pounds - that's a 50% growth! Additionally, it is worth mentioning that China has made a leap up the list of organic cotton producers. China's organic cotton fiber production grew by 27 percent. Strong growth, combined with a drop in Turkish production, saw China achieve number two position in terms of volumes for the first time. Driven by demand, Chinese manufacturers are in turn signaling to their growers that organic cotton is sought after. Demand is coming from both global clients and, increasingly, the domestic market.

The report contains some more positive signals for example Tajikistan, in Central Asia, is focused on expansion and the investment in new African countries (including Ethiopia, Kenya, Madagascar, Mozambique, and Zambia) by Organimark, Helvetas, PAN UK, and others, is beginning to take off. While still in its infancy, this investment alongside advances in manufacturing and other value-add with a sustainability component should result in exciting new market opportunities for Africa.

Hope remains that areas under organic cotton cultivation and production will once again increase. An annual increase of 20% would mean that in 20 years, 38% of worldwide cotton production would be organic.

What this would mean for sustainability can be appreciated when one has a look at the results of the initial "Life Cycle Assessment (LCA) of organic cotton" study commissioned by the Textile Exchange for its annual conference in November 2014 in Portland (USA). It reports: „Having a reliable inventory and impact assessment for conventional cotton on hand, the textile community has requested a similar study to provide data on organic cotton cultivation. Textile Exchange (TE) answered this industry need with an impartial, credible and vetted study, conducted by PE INTERNATIONAL.” Results indicate that organically grown cotton has the following potential impact savings over conventional: 46 percent reduced global warming potential; 70 percent reduced acidification potential; 26 percent reduced eutrophication potential (soil erosion); 91 percent reduced blue water consumption; and 62 percent reduced primary energy demand (non-renewable).

In addition, an Organic Cotton Accelerator (OCA) initiative was introduced at the annual Textile Exchange organic cotton roundtable conference in Istanbul in 2013. The idea of OCA is to find and fund innovative ways to ensure the supply of organic cotton by working with "the entire supply chain". Objectives are to improve social, environmental and economic prosperity for organic cotton farmers, promote best practices throughout the organic cotton value chain and ensure the financial viability of OCA.

Another new initiative aimed at accelerating the uptake of organic cotton is the new Cotton-made-in-Africa (CmiA)-Organic Standard to create market access and social added value for African organic cotton farmers. The Aid by Trade Foundation (AbTF) is the largest cotton initiative in Africa and is committed to integrating cotton originating from Africa into the textile industry with increasing success. The foundation is now also dedicated to promoting organic cotton production in Africa as well as its competitiveness on international markets. After successful verification of the Tanzanian cotton company BioSustain, organic cotton according to the CmiA Organic Standard is now available on the market.

“The new CmiA Organic Standard will benefit both the more than 9,000 successfully verified cotton farmers in Tanzania as well as textile companies worldwide as we are also working on market access for CmiA Organic cotton according to the market-oriented CmiA principles,” explains Tina Stridde, Managing Director of the foundation, during the official announcement of the news at this year’s Textile Exchange conference in Portland, USA.

Cotton is one of the main sources of income in the poorest regions of rural Africa.

Against this backdrop, the Aid by Trade Foundation is intensifying its commitment to a more sustainable production both for people and nature with its current Cotton made in Africa (CmiA) Standard. As an extension to the portfolio, it now also offers CmiA Organic cotton. The new standard complements the existing Eco Standard EC No. 834/2007 and the Global Organic Textile Standard (GOTS) with the social and economic criteria of CmiA. By expanding the existing organic cotton standards to social and economic criteria from the CmiA standard, the foundation creates more than just ecological added value with Cotton made in Africa-Organic in additional regions of Africa.

*„The new CmiA Organic Standard will benefit both the more than 9,000 successfully verified cotton farmers in Tanzania as well as textile companies worldwide...“*

*Tina Stridde, Managing Director of Aid by Trade Foundation (AbTF)*

Through its economic and social components it ensures higher yields, a fair income for the farmers, measures towards the advancement of women, and investments in school infrastructure, for example. This

significantly contributes to reducing poverty and ensuring food security for organic cotton farmers in Africa. It also increases the competitiveness of organic cotton originating from Africa thanks to its marketable approach. The CmiA-Organic standard was developed on the initiative of AbTF in close cooperation with independent experts for standard development, organic cotton farmers, local actors, and Textile Exchange.

It would be desirable that these initiatives yield fruit as quickly as possible because in its latest forecast, the ICAC expects that the cotton areas under cultivation will be down by 6% for the 2015/2016 season from January 2015. This is because of the current low price of cotton; about 60 USD cents per pound, which is a five-year low. And also because at the end of January, the Cotton Corporation of India announced sales of state cotton supplies which had been bought under the MSP programme to begin to exert pressure on global prices, according to the Bremen cotton stock exchange. Would it not be worthwhile to seek alternatives? Especially in the light of higher organic cotton prices and the Textile Exchange's claims of increased demand which, according to the laws of supply and demand, would enable the price to increase.

As well as organic cotton, recycled cotton is of increasing significance for sustainable production. In February 2014 the retailer H&M introduced five classic denim pieces, made from recycled cotton. There are jeans, vests and jackets in a variety of washes, and each item contains 20% recycled cotton, which is the maximum amount that can be used today when making new fabric without compromising the quality. The goal is to progressively increase the use of post-consumer recycled materials and this is a start that H&M hopes to scale up. "The recycled cotton could originate from any cotton garments. We chose to produce denim products because we work a lot with denim and with making denim production more sustainable. There is also good recycling technique available for denim", says Jon Loman, concept designer at H&M.

*„The recycled cotton could originate from any cotton garments. “*

Jon Loman, concept designer at H&M

In its overview of the Global Recycled Standard (GRS), the Textile Exchange lists four certified member enterprises who produce textiles and fibres containing a portion of post consumer recycled cotton as well as 22 non-members, mainly from India, Pakistan and Turkey.

Let's look at another fibre; polyester. In the mid-1990s, polyester replaced cotton as the most-produced fibre worldwide, and will continue to increase by about 40% by 2020 to a total of 56 million tonnes. As a chemical fibre, polyester is based on oil, a fossil raw material. Worldwide crude oil production is about 4,100 million tonnes (2012) annually. A little more than 1% of this crude oil is used for the production of 40-50 million tonnes of polyester fibres.

For many years, however, as well as "virgin" polyester production, polyester has also been made from recycled materials, mainly from PET. It is estimated that at least 4000 million tonnes of PET bottles are produced annually, and this number is increasing. Initial attempts to recycle PET bottles took place in 1977, mainly for recycled polyester or R polyester.

Today, R polyester is offered by many enterprises, for example from Unifi, under the name Repreve, from Radici under the name r-Radyarn, or from Freudenberg under the name Viledon® ECO, and has also been included in the ranges of large retailers and brands such as H&M, Otto and Adidas. However, there is still a big gap between marketing and the actual offer, something which we want to look at more closely when considering brands and retailers.

R polyester is very important for all products with a GOTS certificate because in March 2014, GOTS tightened its regulations with Version 4.0 of its standard for the use of its ecological seal and has excluded virgin polyester from the list of the fibres which may be used as a supplement to organically grown natural fibres. Global Recycled Standard (GRS) also reviewed its regulations 2014. The ownership of GRS was passed to Textile Exchange January 1, 2011.

*„GOTS tightened its regulations with Version 4.0 of its standard for the use of its ecological seal and has excluded virgin polyester from the list of the fibres “*

GOTS

Textile Exchange initiated a revision of the standard in early 2012 with the goal to make the standard more robust and to include new chemical requirements. An International Working Group (IWG) of Certification Bodies was developed to revise the standard. The Global Recycled Standard (GRS) is a product standard for tracking and verifying the content

of recycled materials in a final product, while ensuring strict production requirements. Textile Exchange writes: “The GRS is intended to meet the need of companies looking to verify the recycled content of their products (both finished and intermediate products) and to verify responsible social, environmental, and chemical practices in the production of these products. The objectives of the GRS are to define requirements to ensure accurate content claims, good working conditions, and that harmful environmental and chemical impacts are minimized.”



There are two different methods for the production of R polyester: Mechanically and by chemical recycling. In the mechanical process, the PET bottles are cleaned, dried, shredded and processed into chips which can then be converted to melt. In the chemical procedure they are also chopped into many small parts and decolorized. Finally they undergo depolymerization, the chemical method utilizing repolymerization. Both procedures have their advantages and disadvantages. Mechanical recycling is more limited in acceptable inputs, but is less expensive and saves more energy. Chemical recycling provides a broad range of acceptable inputs, but is more expensive and needs more energy.

Because chemical recycling involves the molecular level, recycled polyester does not differ from virgin polyester. The Japanese company Teijin offers PET bottle chemical recycling, going one step further with the establishment of a closed loop with the name ecocircle, chemically recycling used polyester clothing and converting it into new polyester yarn.

*„Teijin’s chemical recycling technology, a first of its kind in the world, makes it possible to refine old polyester into new polyester raw material equivalent to that made from petroleum. “*

Teijin

The company writes: „Teijin’s chemical recycling technology, a first of its kind in the world, makes it possible to refine old polyester into new polyester raw material equivalent to that made from petroleum. For example, an old and worn out polyester fleece and coat can be recycled into a new fleece and coat over and over again. Moreover, this technology reduces both energy consumption and CO2 emissions drastically when compared to using oil to make new polyester raw materials.”

In 2002, Teijin, along with apparel and sportswear manufacturers that shared the commitment, started a closed-loop recycling system named “ECOCIRCLE”, based on their one-of-a-kind chemical recycling technology. Participation grew to include companies from Japan, the United States, the EU and China, and since then, over 150 partner companies are now involved. In 2012, the company has started the promotion of closed-loop recycling system development in China.



In 2012 Teijin established a joint venture with the Chinese company Jinggong Holding Group to create a company called Zhejiang Jiaren New Materials Co. Ltd., in Shaoxing, Zhejiang province, China, one of China's largest production bases for fiber products. Through the joint venture, the two companies will chemically recycle polyester as well as manufacture and sell the resulting fibers, with the aim of establishing a closed-loop recycling system in China similar to Teijin's Eco Circle program presently in operation in Japan.

The market and demand figures seem to be good, as Teijin report in their Consolidated Financial Statements Summary dated 3.2.2015: "In the PRC, our polyester recycling joint venture in Zhejiang Province proceeded with the construction of a new production facility, which is scheduled to commence operations before the end of fiscal 2014."

A new development by Oerlikon Barmag could improve the mechanical recycling situation, or more precisely, that of the company's 50% subsidiary BB Engineering. The new VarioFil R+ by BBE is the world's first POY spinning line which uses recycled bottle flakes as feedstock for dope-dyed textile POY.



*„The new VarioFil R+ by BBE is the world's first POY spinning line which uses recycled bottle flakes as feedstock for dope-dyed textile POY. “*

BB Engineering

The line provides several technological features such as a special extrusion system for bottle flake materials, the latest metering and blending technology for dope-dyeing and an advanced 2-step melt filtration. The result is a high quality dope-dyed POY. The turnkey machine comprises 4 spinning positions, each equipped with an Oerlikon Barmag 10-end WINGS® POY winder. By using bottle flakes instead of rPET chips the VarioFil R+ avoids the additional pelletizing of bottle flakes into rPET chips and reduces the spinning process for one step. This leads to a significant advantage in terms of investment and energy costs. It also provides the latest technology for dope-dyeing, which is the most resource-saving dyeing process.

At an Open House Event at its facilities in Remscheid, Germany in January 2015 BBE presented the machine in working mode to more than 120 customers from all around the world and the company demonstrated the yarn quality by showing the texturizing process, converting the manufactured rPOY into DTY on Oerlikon Barmag's eAFK texturizing machine.

Another important part of the machine is BBE's brand-new cleaning system for melt filters, known as White Filter Cleaning WFC. WFC allows the cleaning of melt filters, but also of other melt-contaminated parts without any chemical solvents and is a good complementary system for the VarioFil R+ line to clean its filtration equipment.

When a world market leader takes up a niche technology and improves it with its own technology leadership, and this additionally serves to make production cheaper, this could be a big step toward increasing R polyester market share, propelling it in a mainstream direction. It ought not to be forgotten that the machine output, with about 450 kg/h of polyester, is not in any way competition for the conventional polyester production plants. A problem, though, that Oerlikon Barmag will be able to solve very quickly with enough market demand.

Unfortunately there is also bad news for PET recycled polyester from the beverage industry itself. Manufacturers of plants for the production of PET bottles, such as the German company Kronos, have also recognised that PET bottles are a popular resource which industry can produce in a more resource-conserving and cheaper way.

*„The use of recyclate has clear economic and ecological benefits.“*

Kronos

*„This biobased PET has exhibited properties equivalent to petro-based PET in laboratory conditions.“*

Toray

The enterprise writes on their web page: „The Kronos MetaPure bottle-to-bottle recycling plant efficiently recycles used PET bottles - and the recyclate is then reused in the food and beverage industry as recycled PET (rPET). The use of recyclate has clear economic and ecological benefits.“

If every industrial sector wishes to implement and propel their own closed loop, the textile industry will soon face the problem of having to recycle large amounts of post-consumer polyester textiles to new yarn in the way that Teijin have done, or a little bit further down the line, to produce biodegradable polyester from biopolymers. Concepts are being put forward by scientific researchers, as well as from industry.

Already in 2011 the Japanese company Toray succeeds in the production of the world's first fully renewable, biobased polyethylene terephthalate (PET) fiber. The company announced: “Toray used terephthalic acid synthesized from Gevo's biobased para-xylene and commercially available renewable mono ethylene glycol (MEG) as raw materials, and successfully produced the PET samples by applying a new technology and PET polymerization in June this year.

This biobased PET has exhibited properties equivalent to petro-based PET in laboratory conditions. Toray has also succeeded in the production of a fiber using this fully renewable biobased PET for the first time in the world. The success of this trial, albeit under laboratory conditions, is proof that polyester fiber can be industrially produced from fully renewable biomass feedstock alone. This is a significant step that would contribute to the realization of a sustainable, low-carbon society.”

Since 2001 there has been a solution to produce PLA similar to polyester from maize. The renowned magazine National Geographic reported: „U.S. textile manufacturers are exploring an innovative way of making clothing, furniture upholstery, and other products from corn.

The product, which has been named Natureworks, is the brainchild of Minnesota-based Cargill Dow. Last year, researchers there found that the starch in corn could be used to form a fiber that’s very similar to conventional polyester. Unifi’s role in the process will be to texture the raw yarn so that it’s suitable to knit or weave into fabric.”

From this research project, Cargill and PTT Global Chemical founded the company NatureWorks, and they produce PLA under the name Ingeo. The manufacturing facility, located in Blair, Nebraska, USA, has a name plate capacity of 140,000 metric tons of Ingeo biopolymer. In September 2014 NatureWorks announced: “NatureWorks releases today the first findings of its updated eco-profile for its naturally advanced family of Ingeo™ biopolymers.

The revised profile, which is based on the latest version of PE INTERNATIONAL’s GaBi LCA software and database, follows the ISO 14040/44 standards and reinforces the fact that the production of Ingeo polymer emits fewer greenhouse gases and consumes less non-renewable energy compared to commonly used plastics such as polystyrene (PS), polyethylene terephthalate (PET), and polycarbonate (PC).” And in December 2014 NatureWorks and Northern Technologies International Corporation (Nasdaq: NTIC) announced the companies are collaborating on marketing and sales of Ingeo™ in India and surrounding countries, including Bangladesh, Pakistan, and Sri Lanka.



In May 2014 INVISTA, one of the world's largest integrated producers of polymers and fibers, and owner of the LYCRA® brand, introduced the only commercial offering of a bio-derived spandex available globally and for use in a wide variety of apparel fabrics and garments. Approximately 70 percent by weight of the new LYCRA® bio-derived spandex fiber comes from a renewable source made from dextrose derived from corn. The production of commercial quantities is planned for the autumn/winter 2015 and spring/summer 2016 collections. One of the first companies which included PLA clothing in its range was the US company Patagonia. They later dropped PLA due to the fact that it contained genetically modified maize. Because food is a valid discussion point as a raw material due to world hunger, NatureWorks want to develop alternatives. On their homepage it says: „In the future Ingeo will be made from cellulosic raw materials, agricultural wastes and non-food plants.”

And with it we come to the last fibre group we are considering here: Fibres based on cellulose, or more precisely Lyocell, which is a product made by Lenzing AG under the trade name Tencel.

*„Our new second generation TENCEL® fiber production facility is a technological milestone for lyocell technology,... “*

Peter Unterspinger, Chief Executive Officer of Lenzing AG

While traditional procedures are technologically very expensive and detrimental to the environment, such as the viscose process, the Lyocell process is environmentally friendly, recycling nearly all of the N-Methylmorpholine-N-oxide used in the process, rendering it practically emission-free, so that it has even won the European Union environmental prize.

In 2014 the Lenzing Group has successfully initiated production at its new TENCEL® jumbo production facility, the largest in the world, at the Lenzing site in Upper Austria. In December the enterprise received the initial results from the new plant. Peter Unterspinger, Chief Executive Officer of Lenzing AG said: “Our new second generation TENCEL® fiber production facility is a technological milestone for lyocell technology, and proof that we are several years ahead of all our competitors. It enables more than 67,000 tons of TENCEL® fibers to be manufactured p.a. by one jumbo production line. This significantly increases efficiency compared to the existing technology.”



<http://www.invista.com>



<http://www.lenzing.com>

As of the end of 2014, total annual TENCEL® production capacity of the Lenzing Group amounts to about 220,000 tons manufactured at the Austrian sites in Lenzing and Heiligenkreuz, in Mobile, Alabama in the USA and in Grimsby, Great Britain.

The “Messe Frankfurt” registered a consistently high demand for biochemical fibres, reported in a communication to the Yarn Expo in its 2015 Spring edition. It says: „After receiving much positive feedback last year, the Chinese Fibre Pavilion will return once again in the Spring Edition with a highlighted zone to promote the usage of biochemical fibres: the Bio Fibre Zone. Unlike traditional man-made fibres which stem from crude oil, biochemical fibre is made with renewable bio materials. Commenting on the unique zone, Ms Wendy Wen, Senior General Manager at Messe Frankfurt (HK) Ltd, said: “Biochemical fibre will be the next hot product in China as developing renewable materials is a big focus of the country’s 13th five-year plan that runs from 2016 to 2020.” Besides the Bio Fibre Zone, more renewable fibres from nine exhibitors can be found in the Renewable and Recycled Zone. Different from products shown in the Bio Fibre Zone, the ones here are made in a low energy consumption and carbon emission production process.”

With this we conclude our consideration of the improvement in sustainability for these various fibres. The examples described here show that there have been many attempts, some successful, to produce more sustainable fibres.

Nevertheless, it remains to be seen to what extent these fibres will achieve appreciable shares of the market, for example, up to 2030. The production of polyester has grown by 15 million tonnes every year from 1960 to 1990. At the moment it is hardly conceivable that the new, more sustainable fibres will grow in a similar fashion, even though 30 years is a period over which any crystal ball will come unstuck. In the short-term, we see that R polyester from PET bottles has the largest volume growth overall.

*„Biochemical fibre will be the next hot product in China...“*

Ms Wendy Wen, Senior General Manager at Messe Frankfurt (HK) Ltd

2015 will bring a lot of news on the subject of new fibres and fibre recycling. For example, the 23rd International Polyester Recycling Forum with the overall subject of “Latest technologies for the challenges of polyester recycling” takes place on March 4th 2015 in Bad Oeynhausen, Germany.

Amongst the speakers are Erwin Glawion from Truetzschler Nonwovens & Man-made Fibers on the subject of “R-PET fibers for Nonwovens “, and Dr. Wolfgang Ernst from BB Engineering GmbH on the subject of “Latest Developments on Bottle-To-Fiber Processes “. And also at ITMA 2015 “recycled fibre and yarn” will come into focus with their own sub-chapter – a development that recognises the increasing role of recycled raw materials in textiles of all kinds.

## Textile machinery

Now we go one step further and come to the processing of the fibres along the textile value chain. Mechanical textile engineering celebrates its most important industrial exhibition, the ITMA, in Milan in November 2015. How importantly the manufacturers of textile machines view the subject of sustainability is shown by the motto of the fair: “Master the art of sustainable innovation”.

Because pioneering technical innovations are traditionally presented at the ITMA, and because participants like to keep their cards close to their chests at this time, we must direct our attention in this area above all to the future.

In particular, the German enterprises who have joined the VDMA “blue competence initiative“ for more sustainability, and the Italian enterprises, who have joined the ACIMIT “Supplier of sustainable technologies”, and who have certified their special energy-efficient machines with the “green label“ seal will provide new benchmarks in the direction of energy efficiency and environmental protection with their new machines and processes.

So in 2014, it was less about new machines but rather some very interesting news with regard to furthering the subject of sustainability.

For many years, **Oerlikon Manmade Fibers**, with its e-save fibre production strategy, has been a forerunner in sustainable production methods.

At the tenth anniversary of the Annual Meeting of China Textile Round-Table Forum, held on January 31, 2015 in Beijing Capital Hotel, Oerlikon Manmade Fibers Segment CEO Georg Stausberg presented to more than 300 participants the results of the exclusive study “Sustainable growth through value innovation”. The study investigates the potential savings to the Chinese textile industry if outdated machinery were to be replaced with modernized technologies. Continuous development of Oerlikon Manmade Fibers technologies has generated high economical benefits that include energy savings, reductions in CO<sub>2</sub> emissions, land savings and productivity increases.

Outdated filament spinning technologies in China currently account for 42% of the total energy consumption and CO<sub>2</sub> emissions, but can supply only 16% of the total filament production.

*„The study investigates the potential savings to the Chinese textile industry if outdated machinery were to be replaced with modernized technologies. “*

Georg Stausberg, Oerlikon Manmade Fibers Segment CEO

With the latest technology, the specific average power consumption per ton was reduced by 55% (WINGS FDY) and 40% (WINGS POY) compared to outdated technology dating from the mid-nineties. If these machines were to be replaced with the latest Oerlikon Barmag equipment, the energy consumption would be reduced by 78 000 MWh and the CO<sub>2</sub> emissions by 42 000 tons. “All in all, this study shows that Oerlikon Barmag’s and Oerlikon Neumag’s latest technologies can support China to reach the energy saving potentials and to support the people to have a better and cleaner living environment”, said Georg Stausberg.

A very committed company in the field of sustainability is **Trützschler Spinning**, a German family enterprise and the market leader in preparation machines for short staple spinning. Blow room machines, cards, draw frames and combers are designed for maximum material utilisation and minimum energy consumption.



Furthermore Truetzschler is very innovativ in developing of new machinery which shortens the production process on the whole. We would like to introduce three of their latest solutions with reference to sustainability. The first is the Trützscher Monitoring System WASTECONTROL which monitors the waste suction of the cleaners. The optical sensor distinguishes dirt particles and fibres. WASTECONTROL automatically determines the optimal setting of the mote knives. The second, the CLEANOMAT Cleaner CL-U is the only cleaner with dust removal module, motor adjustable cleaning elements and continuous control without stop-and-go. It is universally suited for all cottons. And last but not least the Integrated Draw Frame IDF. It is directly connected to the card in place of a can changer. The IDF sliver is ideal for feeding rotor spinning machines. The yarn is of higher quality and the production costs are significantly lowered through the elimination of the draw frames.

For years The Swiss **Saurer** Group was integrated into the Oerlikon Textile e-save initiative but they have had to reposition themselves since they have become Saurer again. In June at ITMA Asia in Shanghai the group has launched as part of the philosophy of innovation and sustainability the new E3 label for Energy, Economics and Ergonomics. In comparison to the Oerlikon e-save initiative, the factor "Environment" is missing here.

**Rieter**, also from Switzerland, became a member of the VDMA blue competence initiative in October 2014. The enterprise writes: "As the leading supplier for textile machinery and components, Rieter focuses on low energy consumption and high raw material utilisation in the development of spinning machines. Customers thus profit from sustainably-producing machines. With its sustainability solutions, the Company fulfils the criteria of the VDMA sustainability initiative „Blue Competence“: with immediate effect, Rieter belongs to the circle of the „Blue Competence“ partners." It's been long overdue that Rieter, as a listed enterprise and a market leader, took the subject of sustainability seriously, and not only for the purposes of its own economic survival.

Over the recent past, Rieter has consistently failed to show a responsible attitude to the subject. Even the improved energy efficiency of their machines was quoted in their press releases as being solely beneficial due to their lower cost. One ought not forget that a more sustainable production is above all a re-education process leading to a fairer and more environmentally friendly society, and that purely economic considerations do not lead, as a rule, to the implementation of a more sustainable production. It definitely requires manufacturers to provide clear impulses that energy efficiency offers not only financial advantages, but that this is a single piece of a bigger puzzle. This having been said, it is a welcome change that now the enterprise is having a rethink under the guidance of new CEO Norbert Klapper.

*„...with immediate effect, Rieter belongs to the circle of the „Blue Competence“ partners.“*

Generally, the subject of sustainability does not seem to be in focus at many machine builders. Other subjects, such as productivity and automation, often dominate enterprise communication which also allows us to draw the conclusion that, for their customers, i.e., the textile enterprises, sustainability does not stand high on the agenda.

An example of the fact that this can also be seen differently is the German weaving machine manufacturer **Lindauer DORNIER**. The company came to ITMA Asia + CITME 2014 with the motto “The Green Machine” and presented themselves as a solution provider for a better environment treatment in the field of weaving. „We are happy to present our technological know-how of high-quality solutions at the ITMA Asia in Shanghai. We see ourselves as experienced partner to provide backing in Asia’s environmental endeavors. Our mission is to make contribution to a more pleasant environment, said Mr. Peter D. Dornier, CEO of the Lindauer DORNIER GmbH.

*„We see ourselves as experienced partner to provide backing in Asia’s environmental endeavors. “*

Mr. Peter D. Dornier, CEO of the Lindauer DORNIER GmbH

How sustainability can be practically realized with technical innovations with regard to machines is demonstrated by German manufacturer **Karl Mayer** with their warp knitting machines. The innovation reflects the fact that energy has different functions in the operation of a warp knitting machine: mainly the drive of the knitting elements but also the cooling of the components which must perfectly meet the specific requirements within a certain temperature range due to their material-conditioned features.



<http://www.saurer.com>



<http://www.rieter.com>



<http://www.lindauerdornier.com>



<http://www.karlmayer.com>

## *„KARL MAYER reduces the energy required in warp knitting by using machine components made from temperature-stable carbon fibers “*

Karl Mayer

KARL MAYER reduces the energy required in warp knitting by using machine components made from temperature-stable carbon fibers – this is the commitment of the Obertshausen-based textile machinery manufacturer to the VDMA’s “Blue Competence” sustainability initiative.

The machine parts of warp knitting machines should be solid and sturdy because they must withstand different effective forces. But the material properties of metals considerably restrict the freedom of mechanical engineering. The weight of the metal bars, the thermal expansion of the material and its limited stiffness restrict the machinery builder’s possibilities to increase the rotational speed of the machines for obtaining a higher output of textiles per hour. Carbon fiber reinforced plastic, so-called CFRP, is increasingly employed as lightweight construction material by future-oriented growth markets. A few years ago KARL MAYER also discovered the advantages of CFRP for the manufacture of components intended for its own warp knitting machines.

Due to its mechanical properties, CFRP clearly stands out from other plastics and metals. High tensile strength and stiffness as well as extremely low heat expansion along with a density of only 1.55 kg/dm<sup>3</sup> are outstanding properties of this material, making it the ideal material for many applications. Components made from CFRP have 6 times higher stiffness and up to 8 times higher strength than aluminium, and this with the same weight. In this way, it is possible to reduce the component weight, at the same time achieving a high material rigidity and strength.

CFRP offers minimum thermal expansion, the capacity to reduce the bar weight as well as high material stiffness and strength. On the one hand, these features ensure a considerable increase in productivity. On the other hand, this material also has a previously unequalled temperature stability, thus, offering the chance to extend the temperature tolerance range to 14°C for ensuring a trouble-free operation. Temperature fluctuations - which formerly resulted in machine stops or in adjustments of the rotational speed, thus, leading to increased energy consumption – can now be disregarded thanks to the CFRP technology.

And last but not least, the vibration damping feature of CFRP ensures a consistently high quality of the products which is especially beneficial to the customers. To put it in figures, the use of CFRP has the following advantages: increase in rotational speed by 30% and extension of the temperature tolerance range to 14°C due to the specific material properties of CFRP; 16% less investment cost and 26% lower energy consumption of the air conditioning system.

This approach is a very interesting starting point in increasing the energy efficiency of machines with the use of the most modern components from trendsetting materials.

Let us look at machines which are highly relevant to the issue of sustainability not only in terms of energy efficiency, but also due to their use of water and chemicals: Dyeing machines.

Oerlikon reported from the China Textile Round-Table Forum: „Another big environmental topic these days is the energy and water consumption as well as waste water pollution within the textile value chain. Especially the dyeing plants are in focus of the government due to the water pollution.“

The enterprise that is setting new standards here is German company **Thies Textilmaschinen** which has been faithful to their motto “Go green with Thies”. Over the past few years they have developed machines for thread and fabric dyeing which have high energy efficiency, low water consumption and the application of ecologically friendly chemicals.

After the successful implementation of the latest fabric dyeing machines iMaster H2O and soft-TRD SIII, Thies Textilmaschinen (Hall E6 Stand A 02) introduced its newest yarn dyeing machine in Shanghai: iCone. The new development consolidates highest ecological standards with technological intelligence to achieve tremendous savings in water and electricity consumption. The construction of the iCone is based upon the worldwide established ecobloc series of Thies, but involves innovative new technologies. Its newly designed ‘pump block’ system allows dyeing with an ultra short liquor ratio. Depending on the carry-over of the material, liquor ratios of 1:3.6 in partially flooded vessels are performable in practice.

*„Especially the dyeing plants are in focus of the government due to the water pollution.“*

Oerlikon Manmade Fibers

Improved rinsing functions allow the reduction of the after-treatment time by almost one hour. Moreover, the new ‘suction pipe’ design enables the adjustment of the flow reversal, namely from inside to outside and from outside to inside. iCone has been specifically developed to meet the requirements of stringent international and local environmental protection regulations with simultaneous consideration of its economic Efficiency.

The concept of dyeing the yarn immediately in the production process is also very interesting. Oerlikon Manmade Fibers 3DD polymer mixing technology offers the production of high quality spun dyed yarns for direct usage, eliminating the polluting dyeing step in the textile chain.

With the help of additive injection and mixing systems, masterbatches and additives can be introduced into the melt path at various points between the reactor and the spinning positions. Any number of units can be installed at one reactor spinning line. Depending on the position of the melt distribution pipework, the injection unit can feed additives into anywhere between 2 or more than 48 spinning positions. Today, units are already in operation in 2-, 4-, 12- and 24-position direct spinning lines. Thus, the variety of yarn to be manufactured simultaneously can be increased dramatically.

*„Given a simultaneous energy saving of about 10% by heat-recovery systems would allow the saving of yearly 230.000 tons of CO2 in the Indian textile industry alone. “*

Brückner

The Oerlikon Barmag range of products covers capacities of between 50 kg/h and 5,000 kg/h for the main polymer flow, with mixers with diameters of between 60 mm and 350 mm and capacities of 3 kg/h to more than 450 kg/h for the masterbatch polymer flow to be injected. If the feeding extruder is equipped with an additional batch metering unit, the capacity of the masterbatch flow can be as low as 1.0 kg/h. This also makes these systems suitable for supplying smaller lines with just two spinning positions, for example.

At the ITMA Asia, **Benninger** from Switzerland announced that particularly the Trikoflex drum washer and the BenningerKüsters DyePad BASIC achieve high CO2 savings as a result of reduced water consumption. The machines are key components of its customised continuous-processing solutions. According to Benninger the emissions should be 2/3 less than that of comparable exhaust dyeing.



<http://www.thiestextilmaschinen.de>



<http://www.benninger.ch>

Another process which uses a lot of energy and has high energy-saving potential is textile drying. The German finisher **Brückner** announced in March 2014 that they bring climate-friendly technologies to India.

They wrote in the press release: “As per today’s estimates India will be already in 2025 the most populous country in the world with 1.5 billion people. As emerging market it will undergo a similar development as China and the energy demand will probably increase disproportionately. On a global scale the Indian textile sector plays an important part. India produces 14 % of the worldwide textile yarns and fabrics corresponding to 60 billion m<sup>2</sup> textiles per year. 66 billion kWh thermal energy are required for this quantity which corresponds to a consumption of approx. 1.1 million tons of coal when this fuel is used. Given a simultaneous energy saving of about 10% by heat-recovery systems would allow the saving of yearly 230.000 tons of CO2 in the Indian textile industry alone. The prerequisite for this would be that all lines are provided with a heat-recovery system. Particularly in case of energy-intensive processes such as the drying or heat-setting of textiles and other materials present an enormous energy saving potential. Some years ago we began with a development project to show these potentials, the central point of which was to use a mobile heat-recovery unit in several Indian textile companies. The German Ministry for the Environment and Nature Protection (BMU) as well as the German Investment and Development Company (DEG) accompanied and subsidized this project.

The Ministry supports projects which serve to spread climate-friendly technologies in developing countries and emerging markets.

This project is intended to sensitize the decision-makers in producing companies and to train the qualified personnel. In the framework of this project we planned and built a mobile heat-recovery unit. This mobile heat-recovery unit has been installed for the first time at our customer Arvind Ltd. in Ahmedabad, India. The unit was several weeks in operation, the energy savings have been recorded and documented. At the same time, we used the opportunity to train the operators regarding the optimum production sequence and possible optimization potentials. As support for this first test phase we made a symposium in Ahmedabad for other interested companies. By and by we installed the mobile unit at a total of nine Indian companies to convince them of possible energy savings but also of the CO<sub>2</sub> reduction in the production.”

Another world market leader in the field of finishing machinery from Germany, Monforts, is one of the very first companies in textile machinery sector participating in the VDMA's 'Blue Competence' Initiative.

Monforts says that they always places sustainability at the heart of business and sustainability is a major aspect of their R&D activities.

In particular energy management has been one of their primary goals for many years, driving them to develop resource-conserving and energy-efficient solutions. Of course **Monforts** is one of the leaders in sustainability in the finishing segment by becoming the first company to offer heat recovery modules for dryers as a standard already in 2002. Their heat recovery system, the ECO Booster HRC, is completely integrated into the new chamber design of their latest stenter Montex 8000. For ranges up to 8 fields, only one ECO Booster HRC module is required. With some processes, up to 35% energy consumption can be saved. The calculation base is an 8-field stenter, nominal width 200 cm, 150g/m<sup>2</sup> woven fabric, fixing process, 6000 operating hours per year. And the ECO Booster HRC is also available for retro-fitting of existing ranges. At ITMA Asia 2014 Monforts introduced the new Monfortex 8000 shrinking range to the Asean markets which makes a cut in water consumption of 40% compared with conventional equipment.



<http://www.brueckner-textil.de>



<http://www.monforts.de>



<http://www.interspare.com>



<http://www.santex-group.com>

Interspare, also a German manufacturer of dry technology machines, is currently carrying out a comprehensive study for its product lines Artos and Krantz, to determine how many existing systems could be retrofitted with the innovative EconAir heat recovery system and how much CO<sub>2</sub> could be saved worldwide each year as a result.

As a legitimate successor to Babcock, the company must check several thousand delivered units. In addition, the company relies heavily on its own sustainability in production, for example, by means of particularly energy-efficient buildings and power generation by solar systems.

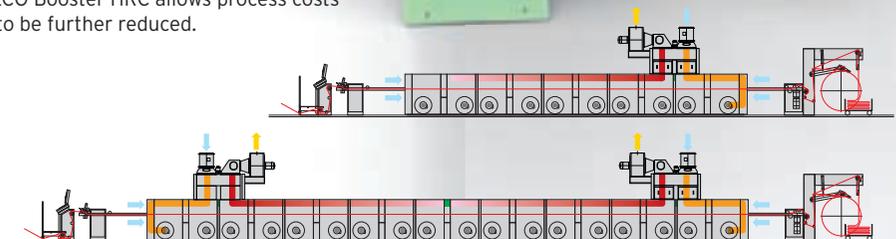
The Swiss-Italian Santex group has another way to improve sustainability. In February 2015 the Santex Group announced that they cooperate with Solwa, an innovative Start Up that works in several “Green Technology” sectors for the environmental sustainability and the protection of natural resources, for more environment friendly solutions. Solwa is known for its modules to treat polluted and salty water powered by solar energy.

## Stenter Montex 8000 with ECO Booster HRC

The intelligent, integrated heat recovery module ECO Booster HRC is completely integrated into the new chamber design of the Montex 8000. The new ECO Booster HRC module is characterised in that it is cleaned automatically while the stenter range is running so that a constant optimum efficiency is assured. It eliminates standstill times for maintenance and hence significantly increases the range availability. The ECO Booster HRC module is equipped with an electric drive which permits computer-controlled optimisation of the heat recovery performance to the prevailing exhaust air streams, something that is not possible with purely static heat exchanger modules. The optimum efficiency of the ECO Booster HRC allows process costs to be further reduced.



Excellence in  
Dyeing & Finishing



A. Monforts Textilmaschinen GmbH & Co. KG  
Germany | A Member of Fong's Industries Group

[www.monforts.com](http://www.monforts.com)



Solwa has developed intensive research on evaporation and optimization of fluid and thermodynamic processes, awarded by national and international institutions: the Gaetano Marzotto Prize, the “Innovation for Human Development” recognition of the United Nations, the “Enterprise Europe Award” final and the “Grands Prix de l’Innovation” participation, the MIT Boston Award as “Italian Innovation of the Year” to name a few. Stefano Gallucci, President of Santex Group, underlines “Solwa has a large market ahead, because it solves our Clients’ environmental problems thanks to a system able to dry waste sludge and reduce greenhouses gas emissions. The innovation of Drywa, one of Solwa’s systems to manage waste and pollutants, integrates Santex Group innovative machineries.”

## Textile chemistry

Now we deal with the manufacturers of textile chemicals and dyes who have made considerable efforts over the recent past conceptualising processes designed to increase sustainability. You can find more information regarding this subject in issue 1 from last year. For this reason we will only consider innovations created in 2014 here.

Let us start with **Archroma**, a global leader in specialty chemicals. In October 2014 the company announced, that they have entered an agreement to acquire the global textile chemicals business of BASF.

The business being acquired delivers products and technologies across the entire textile chemicals spectrum, with particular strength in printing, finishing and coating chemicals segments. The acquisition ideally complements Archroma’s textile dyes and chemicals portfolio and geographical presence.

In addition, the acquisition will allow Archroma to reinforce its Textile Specialties team with a global specialist team that has an especially strong presence in Asia and other high growth markets. Through the acquisition, Archroma becomes a heavyweight in the textile chemical sector and assumes a special responsibility for extra sustainability. Let us see how the company deals with this new responsibility.

In June 2014, The ZDHC Joint Roadmap group, which today gathers 18 members, has published the “Manufacturers Restricted Substance List (MRSL)”, a document that identifies the chemical substances banned from intentional use in facilities that process textile materials in apparel and footwear. The MRSL establishes the acceptable concentration limits of these banned substances in chemical formulations used within manufacturing facilities. Already in July, only one month later, Archroma announced the publication of its first formulation list of “ZDHC MRSL - compliant” colorants and chemicals for textile and apparel. “Archroma’s formulation list of ZDHC MRSL-compliant products is probably the most comprehensive one that is available to textile manufacturers, brands and retailers on the market at this stage,” commented Thomas Winkler, President Textile Specialties at Archroma.

*„Archroma’s formulation list of ZDHC MRSL-compliant products is probably the most comprehensive one that is available “*

Thomas Winkler, President Textile Specialties at Archroma

And in January 2015 Archroma updates their “One Way calculator” with ZDHC MRSL-compliant products. ONE WAY helps mills and brand owners to develop innovative textile solutions that are both more ecologically and economically sustainable. The move will give textile apparel and footwear customers the time-saving advantage of being able to pre-select products that help, at an early stage in their selection process, to continue to drive down the level of impurities in the manufacturing process, which not only means on the final garment or fabric but also in the waste water.

All ONE WAY dyes and chemicals have been screened by Archroma’s product stewardship specialists against more than 15 textiles eco-standards and criteria, including bluesign®, OekoTex®, GOTS, 20 of the major Restricted Substances Lists (RSLs), and other relevant criteria such as high bio-Elimination.

With “One Way”, the 2020 “Joint Roadmap Toward Zero Discharge of Hazardous Chemicals” targets, a commitment and roadmap aiming at reducing the environmental impact of the textile industry, can be achieved today.

In November 2014 Archroma announced that they can offer nature-inspired clothing colors with full traceability. The chemical company combines the old and the new in a range of “biosynthetic” dyes for cotton and cellulose-based fabrics - EARTHCOLORS - which are derived from almond shells, saw palmetto, rosemary leaves, and other natural products.

EARTHCOLORS make use of agriculture waste products that would otherwise be sent to landfill. They can be used to provide rich red, brown and green colors to denim and casualwear. The new dyes, which Archroma describes as biosynthetic sulfur dyes, have been four years in the making. They have the overall performance of the company’s existing range of sulfur dyes made from conventional raw materials. Archroma describes this new development as a step-change in dyes manufacturing and coloration technology.

To make EARTHCOLORS, Archroma transforms biomass from waste products of the agriculture and herbal sectors in a patent-pending process.

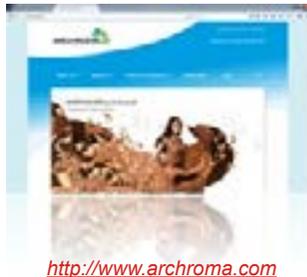
“Not one square meter of land is set aside to grow the raw material for these dyes, so there is no competition for arable land,” says Alan Cunningham. The new range is produced near Barcelona, Spain, with all raw materials sourced from within a radius of 500 km.

Another enterprise that has provided the textile chemical sector with many new ideas for sustainability is Huntsman Textile Effects. In January 2014 Huntsman Textile Effects and TJ Beall Company announced a joint effort to create a new generation of sustainable diaper composite layers produced from un-bleached (greige) cotton. ULTRAPHIL® CO is a novel development that combines Huntsman’s ULTRAPHIL® CO technology and TJ Beall’s super-cleaned greige natural cotton fiber, sold as “True Cotton®, for a functional diaper fluid management system. Current third party testing has shown that True Cotton® nonwoven fabrics treated with ULTRAPHIL® CO outperform industry standard diaper topsheets in several major diaper performance metrics.

In June the company announced that GIZ, a German federal agency that promotes sustainable development around the world, and Huntsman Textile Effects cooperate to raise the bar for the textile industry in Bangladesh through chemical environmental management. In January 2015 Huntsman Textile Effects has extended its range of high-performance TERASIL® dyes to now provide economical, robust and reliable exhaust dyeing of polyester, polyester/cotton and microfiber and elastane blends. TERASIL® TC dyes exhibit very good application properties and are highly compatible, with a high standard of leveling performance and very good reproducibility.

*„Not one square meter of land is set aside to grow the raw material for these dyes“*

Alan Cunningham, Head of Textiles Dyes Marketing, Archroma



They provide minimum sensitivity to reduction, good fastness to dry heat, good pH stability, good coverage of barness and minimum staining on adjacent cotton fiber. These properties help mills improve efficiency and productivity to minimize rejections and achieve a higher return on investment. Compatibility with key industry standards and a complete color range further support textile mills to win and retain customers in a more competitive global environment. The new TERASIL® range comprises a complete set of intelligent mixes for dyeing medium to dark shades, with six colors currently available: yellow, orange, rubine red, blue, turquoise and black\*.

The dyes fulfill OEKO-TEX® 100 requirements, are bluesign®-certified, and satisfy the Restricted Substances List (RSL) requirements of the major brands and the Zero Discharge of Hazardous Chemicals (ZDHC) Group.

And with the new ECOOL70 dyes introduced in February 2015 Huntsman addresses textile industry's sustainability challenges again. The eCool70™ concept makes it possible for mills to achieve a range of brilliant shades while using less water and energy for better environmental performance, lower processing costs and enhanced productivity.



The concept persist of AVITERA® Brilliant Yellow SE, NOVACRON® Brilliant Blue EC-B and Brilliant Turquoise EC-GN. eCool70™ helps mills lower their energy consumption and processing costs by allowing dyeing and washing-off to take place at just 70°C (158°F), which is significantly lower than the 90°C that is necessary with conventional hot dyes. The wash-off cycle is also considerably reduced, which results in lower overall water consumption and shorter processing time to enhance productivity.

We could cite countless innovations from these and other companies but we want to limit ourselves to those already mentioned because they provide a useful spectrum showing how the chemical companies are attempting to increase sustainability: More ecologically friendly substances, less water use and lower production temperatures.

However, one more innovation from the company **Novozymes** should be mentioned. Their new technology offers cold bleaching to denim manufactures. Working with cold water and reducing the use of the chemicals, the solution quickens the denim bleaching process, and secures higher quality denim. The new cold bleaching solution is based on enzymes known as peroxidases, and this innovation is formulated to work without extra oxygen from either the air or water. This new peroxidase has a very rapid reaction speed - 90% of the reaction finishes within 10 minutes.



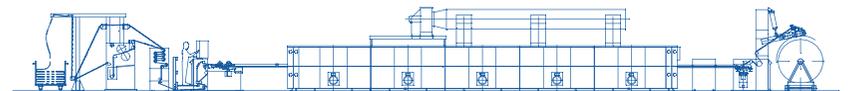
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countries are there in the world where textiles are produced on machines of the brands Krantz and Artos. Small, medium and large-scale companies as well as world market leaders are using these machines to dry and finish woven and knitted fabrics for domestic markets and for export. But despite all the differences, there is one strong link: The people who work with our machines, appreciate the outstanding quality and flexibility we provide. This applies not only to the machines, but to our service and spare parts as well. We are happy to describe to you examples of the advantages of our machine design. Please contact us.

Machine programme and contact information under: [www.interspare.com](http://www.interspare.com)

**INTERSPARE**  
TEXTILMASCHINEN

**ARTOS** *Krantz*



Still the peak in finishing machinery.

At 20th January 2015 Novozymes announced its new corporate strategy, “Partnering for impact”. With this strategy, Novozymes reinforces its commitment to help solve some of the pressing global challenges facing a growing world. As the world leader in industrial biotechnology, Novozymes understands that biology can bring answers to some of these challenges.

Pooling insight and expertise together helps find the sustainable answers needed. “It is important to focus on relationships that make a difference. We call it Partnering for Impact,” says Peder Holk Nielsen.

“For us, partnerships mean deep-rooted collaborations with mutual benefits and obligations. Impact is about creating healthier foods, better climate, cleaner air, nature in balance or more jobs.

And it is about optimizing a partner’s processes, creating new products or reducing their environmental footprints. Creating impact for our partners is often also a very direct way to better lives in a growing world.”

*„Impact is about creating healthier foods, better climate, cleaner air, nature in balance or more jobs. “*

Peder Holk Nielsen, CEO Novozymes

## Certifier

Let’s take a brief look at two important certifiers.

In October 2014 bluesign technologies and Bayer MaterialScience have joined forces for a sustainable textile industry and want to advance their initiative

globally. The two companies have agreed to enter into a strategic alliance for this purpose. The objective is to ensure safe production processes and working conditions along the entire value chain.

Bayer MaterialScience has had the waterborne polyurethane dispersions in its Impranil® line tested and certified under the bluesign® system. Textile manufacturers in search of chemicals with bluesign® certification can now find information on these products in the bluefinder database, that currently has data on some 5,000 chemicals used in the industry.

OEKO-TEX® unveiled in 2013 the new STeP by OEKO-TEX® certification for sustainable textile production facilities. STeP by OEKO-TEX® certification is designed for brands, retailers, and manufacturers from all sectors of the textile supply chain who want to validate their sustainable production in a transparent, credible, and clear manner that is consistent around the world.

After successfully certifying companies from Europe, Ökotex was also able to certify its first companies in Asia in October 2014 – in China and in India to be precise.

The fabric and yarn manufacturer Century Rayon, Shahad (a division of Century Textiles & Industries Limited, the flagship company of B. K. Birla Group of companies), has become the first textile company in India to be awarded with the STeP by OEKO-TEX® Certificate for Sustainable Textile Production. And Guangdong Esquel, the largest production campus of Esquel Group, has become the first production facility in China to be awarded with STeP by OEKO-TEX® certification for its sustainable textile production.

In July 2014, again at TexWorld, Oekotex presented MySTeP, a robust, secure database application that houses a textile product manufacturer's information related to its sustainable operations.

The MySTeP database facilitates private, transparent communication between customers and suppliers, ensures that regulatory compliance data are complete and up to date, and helps facility operators more easily manage the many components of a comprehensive sustainable production strategy that is both environmentally and socially responsible.

The new OEKO-TEX® API (Application Program Interface) further aids communication and data sharing via portals and cloud-based vendor management platforms.

*„Consumer demand for textile products made in factories that operate with respect for their communities, their employees, and the environment continues to grow“*

Dr. Haug, General Secretary OEKO-TEX®

“Consumer demand for textile products made in factories that operate with respect for their communities, their employees, and the environment continues to grow,” says Dr. Haug. “The new STeP by OEKO-TEX® certification and the new MySTeP database give brands, retailers, and manufacturers throughout the textile supply chain a confidential, concise, and effective method for optimizing, tracking, and communicating sustainable production measures in a credible and transparent manner.”

And in October 2014 the Swiss association launched another product label. “Made in Green by OEKO-TEX®” is a new certification for textiles proven to be safe in terms of human ecology and that are additionally produced in a sustainable and socially responsible manner. The label replaces the previous certification system OEKO-TEX® Standard 100plus and the Spanish mark “Made in Green by Aitex”.

## Brands and retailers

This brings us back to brands and retailers. These two groups in particular have made huge efforts in recent years to promote the sustainability of textile products. The establishment of the Sustainable Apparel Coalition (SAC) should be mentioned here. Nevertheless, one gets the impression that, for example, the retailers describe the issue of sustainability in their corporate communications as larger and more important than is currently implemented by the companies in its entirety. Let's take H&M as an example, because on the one hand, the company reflects the activities of many retailers and brands, but on the other hand it is also very advanced and active in many directions.

Since 2002, H&M has already released a CSR report, since 2009 it has been called a sustainability report and since 2010 it has been supplemented with the words "Conscious actions", probably to underpin the seriousness of the activities. The 2013 report covers 92 pages. Essentially, the company states all the challenges along the textile value chain, specifies where it stands, states the other activities and individual actions and states the objectives, where it is going. Everything appears very transparent with plenty of figures, however, it is still difficult to obtain an accurate overview of how much sustainably produced clothing is actually sold per year at H&M worldwide. Let's take a look at a few statements. "H&M used recycled polyester equivalent to 9.5 million PET bottles". "15.8 % of our cotton now comes from sustainable sources (2012: 11.4%)".

This sounds very good initially. Assuming an average of 10 PET bottles per garment, that is almost one million textile products. However, H&M sold more than 500 million garments in 2011 alone, which clearly puts that figure into perspective. And even that 15.8%, which at first sounds good, reveals, conversely, that 84.2% of the cotton used is not sustainably produced. Overall, it can be said that H&M has set out many points for improved sustainability, but that the majority of products is still not sustainably produced.

In the trading giant's current product range, too, the significance and scope of the sustainability efforts cannot be understood. At the time of writing, there are exactly 78 jeans products for women's trousers in the German online shop at H&M. Of these exactly 5 pairs of jeans have the note "CONSCIOUS", an H&M label for more sustainable production.

According to the details, 3 of these 5 models are manufactured from recycled cotton, 1 pair of jeans partially from organic cotton and 1 pair from organic cotton. In the 2013 sustainability report H&M writes: "11% of the materials we used to make our clothes were organic, recycled or other innovative, more sustainable fabrics".

*„Our vision is that all our operations are run in a way that is economically, socially and environmentally sustainable“*

Karl-Johan Persson, CEO H&M

Assuming a recycled cotton proportion of around 20%, this results in a total of around 2 – 2.5 ladies' jeans made from organic or recycled material. For 78 pairs of ladies' jeans, the proportion in this category is just 3% at this time. Of course, this is only a tiny section of the product range of one country, and the calculation is thus meaningless, however, in its own sustainability report, H&M raises very high expectations which should, at best, be confirmed in all product groups.

However, more interesting than the status quo are the H&M goals. The company has set itself the highest of objectives: “Our vision is that all our operations are run in a way that is economically, socially and environmentally sustainable.” Two of these goals, which are directly related, are to “reduce waste” and “close the loop”. Already in 2013 H&M had launched a global garment collection initiative.

“In early 2014, we launched the first products made with recycled fibres from such collected clothes”, said H&M CEO Karl-Johan Persson in the report. But this is likely only the beginning. In an interview with the sustainability online platform 2degreesnetwork.com, Persson states the following additional goals: “We now aim to effectively take all those fibres and get them back in production.

Closing the loop on fibres is a big opportunity, and something that we're working on a lot with different innovation initiatives.”

A further goal is to increase transparency by means of the Higg Index of the SAC. In an interview with 2degreesnetwork.com, Persson said: “Ideally, sustainability information should be readily available on garments. We hope that in the future the consumer will have access to the total sustainability information of a product just by scanning the tag with a mobile phone.”

He most likely does not want to go as far as the Belgian fashion designer Bruno Pieters, as the pioneer in transparency. On his eco-fashion online platform honestby.com, founded in 2012, customers can access all material information and manufacturing details of a product: from the cotton field to the threads, buttons to cloth and from the spinning works to the sewing room. And to top it off, a price calculation of the production and distribution is also offered.

This is very transparent, extensive and perhaps even confusing. How many consumers want to perform extensive background research before making a purchase?

*„Ideally, sustainability information should be readily available on garments. “*

Karl-Johan Persson, CEO H&M

However, even a simple point system along the textile value chain could trigger huge repercussions in textile manufacturing. Anyone who provides too few points in their production step endangers the overall result and will struggle to remain a supplier.

But, it could be difficult in general to remain a supplier. In a list of the environmental impact on climate and water throughout textile production, H&M has the highest value of negative climate impact in fabric production at 36%, and is still at 6% for water. The raw material cotton is in the lead here with 87%. Incidentally, the consumer comes in second for climate at 26%, with cotton in third at 12%. Garment production, transport and sales are together responsible for 22% (6,6,10) of climate impact.

It therefore soon becomes clear what needs to be tackled. It needs to start with cotton. Here 100% of the cotton should come from more sustainable production by 2020. Organic cotton, recycled cotton, and BCI cotton are specified here. As described previously, H&M was the biggest purchaser of organic cotton in 2013.



<http://www.hm.com>



<http://about.hm.com/en/About/sustainability.html>

*„...fabric production has the highest value of negative climate impact at 36%,...“*

H&M Sustainability report 2013

And subsequently in fabric production. On this H&M says: “Generally speaking, we do not have direct business relationships with mills but we work with organisations such as Solidaridad and NRDC to help mills improve their performance.

And we have already started to integrate fabric and yarn mills that are involved in making about 20% of our products into our supplier audit system, aiming for 50% by 2015.”

If this idea catches on, will other retailers and brands also integrate the textile mills in their audits, and what will be the consequences? If we follow the assessment by Oerlikon at the China Round Table, only very few companies would be at a level to deliver the best results.



<http://www.apparelcoalition.org>



<http://www.honestby.com>

## Sustainable innovation leads the way to the future

ITMA, the world's most established integrated textile and garment manufacturing technologies showcase is set for its 17th presentation in Milan in 2015.

Innovation has always been an integral part of ITMA's DNA; it has been the world's leading platform for presenting the latest manufacturing technology since 1951. Sustainable innovation to drive growth for the textile and garment industry continues to be a strong focus at ITMA 2015.

ITMA is a unique showcase of the latest textile technology encompassing the whole production chain from spinning, nonwovens, weaving, knitting right through to finishing. ITMA 2015 will feature 19 key exhibit sectors, with renewed emphasis on Fibre & Yarn, Garment Making and Printing.

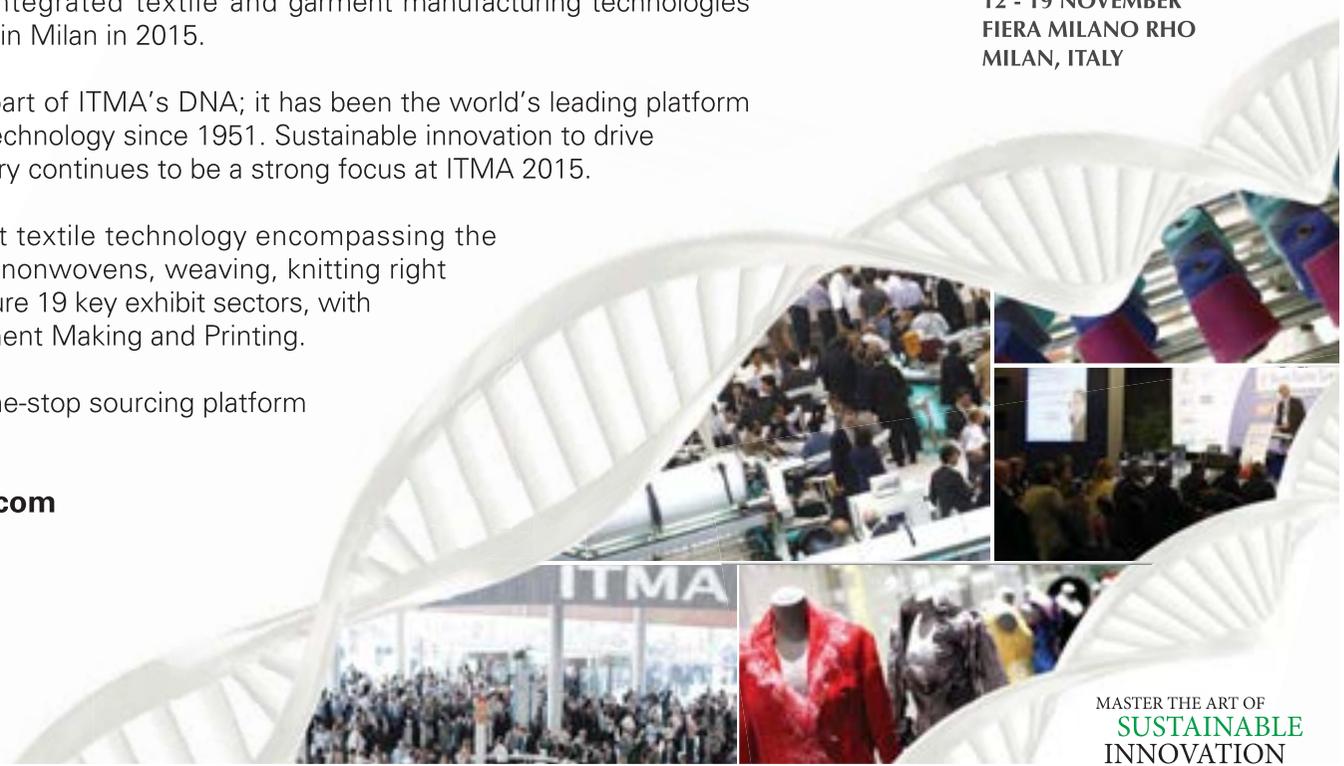
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Especially those who use ancient systems as profitable cash cows could encounter problems with their business model in this way. Will it become a battle of brands and retailers for the textile companies that can already produce sustainably or will be able to with reasonable investments? And what happens to those who cannot?

These remain unanswered questions, but the ITMA motto, “Master the art of sustainable innovation” is becoming ever more compelling. Anyone wanting to keep up with the development will need to invest. New findings on this will certainly be established at the second World Textile Summit, which, unlike in Barcelona four years ago, will be held in Milan during ITMA 2015 on 13 November. Supporting partners are the SAC, the Textile Institute and the Better Cotton Initiative.

The programme is yet to be announced, but the website [worldtextilesummit.com](http://worldtextilesummit.com) already states the essential questions: “What returns can I expect from capital investment in resource-efficient technologies? How do I establish and monitor a sustainable supply chain?”

What are the growth opportunities that arise from a strategy based on clean production and sustainable materials? How do I manage the risks to corporate reputation?”

You may be wondering at this point how long it will take until we can say that we have predominantly sustainable production worldwide, but this question is difficult to answer.

The German Development Minister Müller established a Textiles Partnership in October 2014. An action plan was developed together with 70 representatives from the industry, from associations and from environmental organisations, which describes the goals which the Partnership shall work towards together. The aim of the Partnership, launched one-and-a-half years after Rana Plaza, is to achieve concrete improvements in social and environmental standards in the textiles and garment industry.



*„Even the worldwide enforcement of the European standards would be a major challenge for clothing manufacturers in other continents. “*

Gesamtverband textil+mode

As a result, more than half of the involved companies and associations, which previously worked together, did not join the Partnership, because the action plan either turned out too far-reaching for them or they considered the implementation time to be too fast.

Adidas, Aldi, Lidl, Kik, H&M, Puma, C&A and the Otto Group backed out shortly before the start, and the major trade associations did not enter either. Representatives of the fashion industry and retail described it as “not ready for decision”, “unrealistic” and “not feasible” in many details.

For example, the German “Gesamtverband textil+mode” Confederation also announced on its website: “German and European companies are leaders in ecological production. Even the worldwide enforcement of the European standards would be a major challenge for clothing manufacturers in other continents. Demands in the action plan, which go far above this level, are unachievable in a reasonable period for many companies worldwide at the current state of science.”

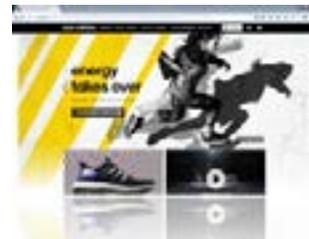
This basically suggests that many companies may want to do this, and even define high and timely goals, but are not confident that they can make contractual concessions to this end. Around 30 companies and organisations were among the first signatories of the Textiles Partnership in the end. There are currently 49.

## “Green” fashion

Looking at the bigger picture, it should not be forgotten that even today, there are many small labels and retailers offering completely sustainable fashion. This is not yet the case for all clothing and certainly not with 6-8 collections per year, but the offer continues to increase. In the denim sector, for example, companies such as Kuyichi, Mud Jeans or Nudie Jeans offer a large selection of jeans products at prices that can certainly compete with brands such as Mustang and G-star and due to the GOTS certification, are guaranteed to be produced sustainably from organic cotton. Retailers such as Glore (Global Responsibility) hold over 100 brands representing eco fashion, green fashion, or sustainable fashion.



<http://www.bmz.de>



<http://www.adidas.com>



<http://www.c-und-a.com>



<http://www.otto.de/unternehmen/en/unternehmen/engagement.php>

## *„Our two fairs spotlight fantastic labels and once again demonstrated their position as Europe’s centre for modern green fashions.“*

Detlef Braun, Member of the Executive Board of Messe Frankfurt

And these small, true heroes of sustainability are organising themselves increasingly well and thus reaching more and more customers. Portals such as [www.getchanged.net](http://www.getchanged.net) list green brands and show where they can be bought in the German-speaking region, both online and in stores. And with increasing success and growth, they also continue to put pressure on large brands and retailers, as they are gaining market shares in a growth sector.

The two trade fairs Greenshowroom and Ethical Fashion Show in Berlin, operated by Messe Frankfurt, demonstrate just how much the segment is growing. At the last edition in January 2015 163 international exhibitors (+30 percent\*) from 23 countries and lots of visitors throughout the fair underscored the on-going process of expansion in the sector. “This has been a very successful and extremely impressive occasion”, said Detlef Braun, Member of the Executive Board of Messe Frankfurt. “Here, the fashion industry has seen the quality and high degree of attractiveness achieved by eco-fashions over recent years. Our two fairs spotlight fantastic labels and once again demonstrated their position as Europe’s centre for modern green fashions.”

A clear indication for the international expansion of the green fashion sector was shown by the increasing number of countries represented at the two fairs. With 23 nations, the portfolio has become much more international. Particularly well represented in addition to Germany were the Netherlands, Scandinavia, Switzerland, Italy and Spain.

The opening ceremony with Dr Gerd Müller, Federal Minister for Economic Cooperation and Development, and Detlef Braun was attended by numerous well-known figures from the worlds of politics and business, as well as important representatives of the media. Right at the beginning of the fairs, visitors were given evidence of the way in which the Textile Partnership initiated by the Ministry of Economic Cooperation is developing with the introduction of a new member of the Partnership, the Bremen Cotton Exchange represented by its president, Ernst Grimmelt, which aims to contribute its expertise to the discussion on the implementation of improvements to social and environmental standards for the textile and garment industry.



Even the entry of the Bremen Cotton Exchange into the Textiles Partnership should make people sit up and take notice, as the biennial International Cotton Conference in Bremen always brings together the who's who of the global cotton industry and then, at the latest, it will be revealed whether and to what extent the German textile alliance can encourage people worldwide to "act differently".

## Conclusion

This has been a very long journey through the activities and innovations for increased sustainability in 2014 and a brief look at 2015. Just the length of this report, which is still far from complete, clearly shows how versatile and pervasive the efforts in this textile issue are. It is certain that today already, there is every technical possibility to produce sustainably. The fibres are there, the machines, the chemistry, the reliable certifiers, and there's even the possibility to complete the cycle by means of recycling. Increased sustainability is thus becoming more and more a question of cost, willingness to invest and the will to take this route. For the individual businesses, the question is no longer whether to tread the path to increased sustainability, but rather when to do it. Preferably just in time.

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## Examples for „sustainable machines“



Karl Mayer: Cross-section view of a knitting place with CFRP bars



The Karl Mayer HKS 3 M machine equipped with CFRP bars



Lindauer DORNIER air-jet weaving machine A1 (Jacquard).  
The new patented drive concept DORNIER SyncroDrive® with energy class EFF1 motors increases speeds by up to 10% with minimum heat development and the same energy requirement.

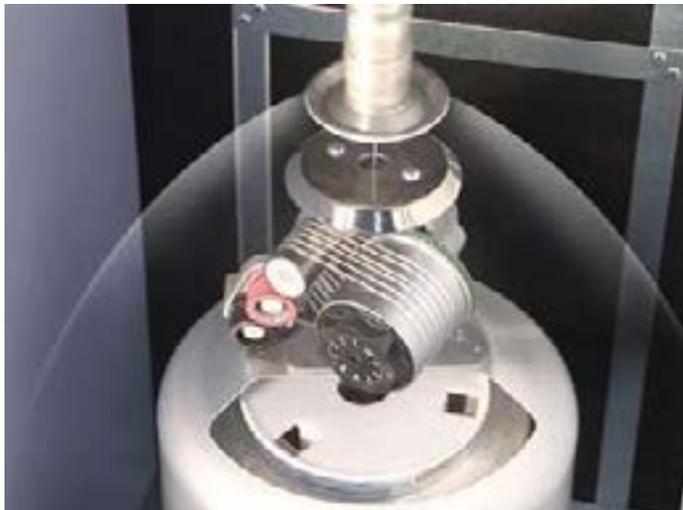
## Examples for „sustainable machines“



The Saurer Allma CableCorder CC4 branded with E3



Oerlikon Barmag's WINGS POY



The CC4 offers up to 50% energy savings through outer yarn feed device



Oerlikon Neumag's RoTac3 has been granted the e-save label for particularly energy-efficient and eco-friendly technologies

## Examples for „sustainable machines“



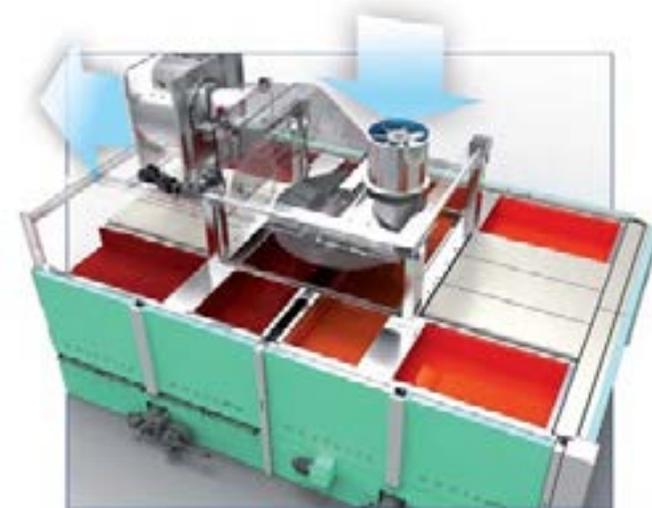
Brückner ECO-HEAT heat recovery system



Thies Textilmaschinen iMaster H2O



BenningerKüsters DyePad

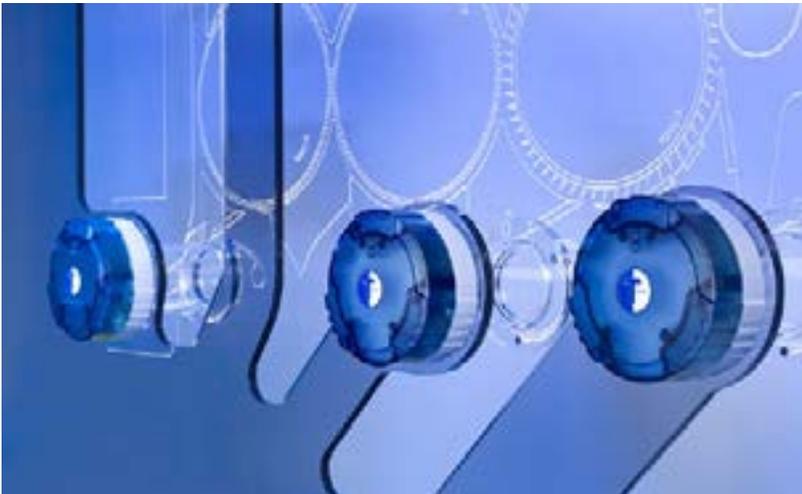


Monforts ECO Booster HRC

## Examples for „sustainable machines“



Trützschler Integrated Draw Frame IDF



Trützschler Monitoring System WASTECONTROL



Trützschler CLEANOMAT Cleaner CL-U

Texdata Magazine  
2016-1



# *Sustainability – the action phase has started*

**V**iewed in the context of our previous reports on sustainability over the past four years, 2015 has undoubtedly been a very special year. In a few years' time, it may even be considered the year in which sustainability made its general breakthrough by leaving the discussion phase and entering the phase of concerted action. To underpin this theory, we would like to take a closer look at two major events: firstly the ITMA 2015 in Milan and secondly the World Climate Summit in Paris. The resolutions agreed in Paris demonstrate the strategic trend, while the feedback from Milan provides an insight into the operative fields of action in the textile industry.

In the interests of consistent terminology, we wish to start, however, by reiterating our definition of the word “sustainability”, as it is often used in a vague sense. Our definition conforms with the one formulated by the Brundtland Commission of the United Nations on 20 March 1987: “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

In previous issues, we have already reported in detail about the importance and urgency of sustainability for the economy, the planet and mankind. The keywords can be recapitulated as follows: population growth, world hunger, growing demand for raw materials, shortage of resources and above all climate change with all its unpredictable consequences.

Sustainability along the textile value-added chain therefore means the sustainable production of fibres, starting with the extraction of raw materials using a minimum of resources, the energy-saving, resource-efficient and eco-friendly production of yarns, and the manufacture of textiles, such as home textiles, clothing and technical textiles, based on moderate working conditions, decent wages and eco-friendly processes.

## Fibers

Let us begin as usual with the fibres, and more precisely with a natural fibre; cotton. The idea of sustainability here means cotton cultivation without appreciable burdens on land and excessive water use and irrigation methods. In addition, organic cotton may not be genetically modified.

According to the Organic Cotton Market Report 2014 published by Textile Exchange in June 2015, the production of organic cotton increased again in 2014 following years of decline, despite the war in Syria. The situation is described as follows: „2014 signifies the beginning of a turnaround for the organic cotton market. After three years of steady decline, 2014 brings 10% growth in overall organic cotton production. This news is energizing and a sign that the textile industry is moving together toward finding solutions. Across the industry, we are seeing some noticeable improvement in business practices, stronger communication between supply chain tiers, an increase in certifications, and evidence of longer-term planning to increase sustainability efforts.“ La Rhea Pepper, Managing Director, Textile Exchange, commented the result as follows: “10% growth is significant, and it couldn’t be possible without the significant industry efforts to create meaningful change. Across the board, the textile industry has increasingly responded to the growing demand for organic cotton as well as the need for focused innovations.”

The top five countries are India, China, Turkey, Tanzania and the USA which have produced 96.68% of total global organic cotton fiber. India continues to be the biggest producer growing approximately 74% of the world's organic cotton. Peru grows 56% in response to market demand. 32,000 ha of land is under conversion to organic over the next three years and the global growth is forecasted to continue – for 2014/15 it is estimated at 15 to 25%.

In Turkey the production is forecasted to reach 20,000 mt over next 3 years and in Tanzania CmiA-organic harvests its first crop. There are also interesting changes at the supply chain. For example there was a 22% growth in certified facilities worldwide. The number of GOTS certified facilities grew by 18% and OCS facilities grew by 26% over last year. India, Bangladesh and China all saw more than 100% increase in their certified facilities and 73% of companies use voluntary standards to verify their organic cotton.

In the top 10 of companies using organic cotton there were some changes too. H&M (2) and C&A changed places and C&A was the number one as in 2012 and 2009. A newcomer is Lindex (8) and Carrefour(6) is a returnee. Other brands are Tchibo (3), Decathlon (4), Nike (5), Target (7), Inditex (9) and Puma(10). A big change was that brands are making their strategy public, including in many cases their targets for organic cotton – a shift in thinking!

The percentage of organic cotton consumed by top 10 (by volume) grew 25% and the top 10 companies (by growth) had an average increase of 156%. 56% of these companies have set specific targets for sourcing organic cotton and 35% publicly report on their progress against Key Performance Indicators. Furthermore 42% use voluntary standard labels on their final products and 81% promote the sustainability attributes of their products.

The biggest challenge is the shortage of non-GMO seed. Textile Exchange named it a major barrier to growth particularly in India, China, and Burkina Faso.

The 2015 Textile Sustainability Conference and the Organic Cotton Roundtable took place in Mumbai on October 5-8. ? Almost 200 producers, manufacturers, brands, retailers, and support organizations from 32 different countries came together in Mumbai to share news and views on organic cotton. The sheer size of the gathering and the energy on the day left no doubt in minds that the desire to grow a robust and resilient organic cotton market is greater than ever. It was pleasing to see the value the OCRT provides the community.

The panelists top recommendations are to provide enablers such as farmer field schools, demonstration plots, input access and certification, and women's open schools, to strengthen whole communities to facilitate access to extension services, technology, farming inputs and markets, to include the intransition years in investment programs to support farmers during the transition to organic.

In addition to go beyond the commodity and approach the farm as an agro-ecological system producing food and fiber, conserving natural resources, biodiversity and ecosystem services and to build partnerships to include government incentives and market mechanisms to achieve product delivery. Farmer first models rooted in transparency, trust, and commitment. An OCRT summary report is available at the TE website. Liesl Truscott, European Director and coordinator of the OCRT, said: “Having so many stakeholders from across the supply chain together in one place is what makes the OCRT so unique, and the perfect opportunity for inspiring change and collective action”.

This is good news for the organic cotton industry. It is nevertheless important to remember that organic cotton continues to account for only a very small proportion of total cotton production. In order to achieve any significant volume, the growth of organic cotton production would have to keep increasing. However, owing to low yields, total cotton production would then fall or the cultivation acreage would have to be increased, possibly at the expense of foodstuffs such as maize or wheat – a complex undertaking. On the other hand, the demand for organic cotton could potentially explode given the rising purchasing power in many emerging countries coupled with high population growth and consumer preference for organic textiles, particularly in the baby clothing market.

Theoretically, genetically modified cotton could offer a solution, as it has numerous advantages in terms of reducing the use of pesticides and water while promising high yields.

However, given its largely unpredictable long-term consequences, it is viewed in a very negative light, particularly in Europe. This topic, with all the major opportunities and risks it involves, is to be addressed by the Bremen Cotton Exchange at its 33<sup>rd</sup> International Cotton Conference scheduled to take place in Bremen from 16 to 18 March 2016. Under the motto “New Directions in Cotton Breeding and Consumer Reception”, defenders as well as opponents of green genetic engineering will be discussing. Considering the results of traditionally applied genetic engineering, it should become clear which opportunities and chances new breeding practices like “smart breeding” offer and which benefits for mankind and environment result thereof.

Above all, it should become clear which reasons there are for the consumers’ lack of trust in genetically engineered products and whether their reservations are justified. At this, animated, but also controversial discussions can be expected, also with the guests of the Conference.

So much to cotton. Another natural fiber is wool. In February 2016 Textile Exchange publicly released the first draft of the Responsible Wool Standard (RWS) for Public Stakeholder Review by interested parties. TE wrote: “This is an important opportunity for the public to give input into the standard, and ensure that it meets its goals and delivers value to the wool industry.’

And also in February 2016 Textile Exchange announced the release of the second set of 13 new documents within the full suite of Material Snapshots, produced in 2015 with financial support from VF Corporation and in collaboration with Brown and Wilmanns Environmental, LLC. The new Material Snapshots offer a deeper dive into the life cycle issues of 27 fibers and materials, covering both “preferred” and “conventional” options (full list available here). Each snapshot combines available LCA data and information with detailed literature reviews to provide a reliable and comprehensive, yet succinct, analysis. Included in each snapshot is an overview of: unit process descriptions, process inputs and outputs, performance and processing attributes, potential social and ethical concerns, availability, certification and pricing details, suggested questions to ask when sourcing the material, and system diagrams.

The new snapshots are designed for more technical users such as materials, sourcing, and sustainability professionals. They are not aimed at users looking for a more summary view of a fiber or material; for that, Textile Exchange offers a set of 33 Material Summaries, produced in 2013/14 with support from VF Corporation (previously also referred to as “Material Snapshots”). The two sets of resources – the existing Material Summaries and the new Material Snapshots - are designed to be used alongside each other within an organization to help educate and enable informed, intelligent fiber and material choices.

Let’s take a brief look now at another fibre made from renewable raw materials: Lyocell.

In November 2015, the Austrian company Lenzing presented its new group strategy, “sCore TEN”. The central idea behind it is to generate profitable growth with eco-friendly speciality fibres. Lenzing writes: “In the light of the increasing demand for textile fibers one of the major future challenges for the fiber industry is sustainability. Lenzing boasts a major competitive advantage in this respect. Its cellulose fibers originate in sustainably managed forests, are produced in an environmentally-friendly manner and are biodegradable. In particular, TENCEL® fibers are unrivalled on the marketplace when it comes to sustainability. Taking all parameters into account, TENCEL® is up to 17 times more environmentally compatible than other fibers. Lenzing fibers are outstanding as blending partners for cotton and polyester, and improve their sustainability.”

All these changes show that in the field of sustainable fibre production there is still considerable movement in the market. Brands and retailers are increasingly realising that the product benefits are not only highly marketable, but also generate good revenue and growth prospects. For the consumer, this opens up new scope for decision-making, which from a purely statistical perspective is likely to generate further growth. This will no doubt lead to the emergence of entirely new strategies or the re-adoption of existing ones. One such strategy centres around Germany’s smart fibre. The company describes their fiber SeaCell as follows: “smartfiber has succeeded with SeaCell™ after years of intensive research to develop a fiber made from renewable resources. This cellulose fiber serves as a host for the seaweed, and therefore also contains the seaweed’s revitalizing properties for the skin.

It is produced through the natural lyocell process, which is an environmentally friendly production method. The lyocell process is virtually closed and integrated into the nature cycle process, and meets the expectations of an industry of the future. This is also why the European Union awarded the procedure the European Environmental Award 2000 in the category “technology for sustainable developments”.

In this connection, it will be interesting to see how the algae-based approach progresses and whether it is possible to extract cellulose from algae on an increasingly large-scale basis.

## Machines

This brings us to the production of yarns and textiles and hence to machines. On 19 November, one of the most successful ITMAs ever threw open its doors. The central theme of the textile machinery industry’s largest and most important trade fair was “Master the art of sustainability”. Almost 125,000 visitors responded to the invitation and attended the event with the aim of bringing themselves up to date with the latest developments in the field of sustainable production and investing in the corresponding technology. 1700 exhibitors from 45 countries very likely displayed around 5000 machines, and nearly all of them, per old ITMA tradition, mainly displayed new machines supplying the immense demand for more energy efficiency, resource conservation and environmentally friendly processes.

Many of the machines exhibited make a significant contribution to improving sustainability. This applies to all processes along the textile value-added chain. By way of example, Saurer Schlafhorst has demonstrated that energy savings are still possible even at a high performance level. The new **Autocoro 9** □ the successor model to the Autocoro 8 first presented at the ITMA 2011 in Barcelona and described as revolutionary in terms of its energy-saving potential □ offers a further 25% energy saving as well as featuring an energy management system. For the production of BCF carpet yarn Oerlikon Neumag, global market and technology leader for turnkey plants, presented the rotating tangle unit **RoTac3** which offers 50 per cent less compressed air consumption thanks to its innovative technology.

In the knitting sector market leader Groz-Beckert demonstrated that energy savings up to 20 percent are possible simply by using their new **litespeed plus** needle. In the finishing sector market leaders showed many ideas in many different processes to save energy. For example the German Brückner introduced their new stenter frame POWER-FRAME ECOLINE with an integrated heat-recovery unit. Monforts from Germany presented a wide range of machines with special emphasis to sustainability and energy efficiency: a new version for knitted fabrics of the famous Eco-Applicator, a new **Monforts XXL stenter** which offers a spectacular width of 7m is equipped with optimized Monforts CADstream nozzles and therefore provides energy savings of upto 35% depending on the production conditions.

Furthermore the new **Montex 8500** equipped with an **Eco Booster HRC** , a heat exchanger which is designed to minimise energy costs during drying and heat setting processes on stenters.

These examples taken from the various different processing stages along the textile value-added chain illustrate the enormous diversity of the various solutions for enhancing sustainability and the huge energy and water-saving potential that has been exploited in recent years by focusing attention on this particular area. The availability of innovative solutions and above all the exhibitors' unison in stressing their commitment to the cause, coupled with high demand on the part of visitors, demonstrates that a comprehensive modernisation of technology in the interests of enhancing sustainability in the textile industry is already underway.

Sustainable production means fulfilling the highest possible demands with respect to all processes and hence requires every single supplier in the supply chain to utilise the most advanced production processes. This is resulting in high investment pressure. Brands and retailers want to manufacture in accordance with sustainability criteria, with the result that their suppliers are having to toe the line. As strikingly underlined at the ITMA 2015, this is the approach currently being adopted and first-mover status has been and gone. The theme is already being addressed by the vast majority of market players forming the global backbone of the textile industry, and will have permeated the entire industry in a few years' time, especially in the light of further developments which are likely to accelerate the trend.

## Partnership for Sustainable Textiles (Textilbündnis)

One such accelerating factor is emanating from Germany as a result of the Partnership for Sustainable Textiles (*Textilbündnis*), which was called into being by Federal Minister Müller and has made great strides since experiencing initial difficulties in getting off the ground.

In April the German Development Ministry announced: „The steering committee of the Partnership for Sustainable Textiles, the German Development Ministry and the textile industry have put in place the prerequisites for companies and business federations to join the Partnership on a broad basis now. The foundation for broad-based support for the Textiles Partnership is an agreed joint action plan. The partners now have made the action plan more specific and precise on a number of important points, particularly with regard to the way in which Partnership members have to pursue and achieve binding objectives and how progress can be monitored in a transparent manner.”

Minister Müller said, “Today, the Textiles Partnership has made decisive headway. Two years after the collapse of the Rana Plaza textile factory in Bangladesh, we are sending an important signal in Germany for fair textile production. We all have a responsibility for this – and we need to live up to it together!”

Many of our partners in Europe and internationally have already voiced interest in our Textiles Partnership, which may become a real hallmark of our effort to achieve social and environmental standards for the textile industry.”

And in October 2015, the Ministry was able to deliver a positive report about the partnership on its first anniversary: “One year on from its inception, the Partnership for Sustainable Textiles has some 160 members, which based on revenue account for almost 50 per cent of the German textile market.

The Partnership is leading the way as the first forum in which a significant number of enterprises from the textile industry are working together on sustainability issues with non-governmental organisations, trade unions, standards bodies and governmental actors. Their shared objective is to improve the social, ecological and economic conditions of production along textile value chains. Membership growth was made possible through the adoption of the second Plan of Action in May. ‘It contains ambitious social, ecological and economic goals, which all members of the Textile Partnership commit to achieving. We must now implement these goals using specific measures to enable the partnership to grow in impact,’ says Gisela Burckhardt with reference to the Clean Clothes Campaign.”

## Brands and retailers

The brands and retailers are showing no let-up, but instead accelerating their efforts in the hope of positioning themselves early on as particularly sustainable enterprises with a claim to leadership status. The aim is to manufacture in accordance with sustainability criteria and to make it absolutely clear to the consumer that sustainability is a special product benefit. In this area, the Swedish clothing company H&M is always among the frontrunners. In March 2015 Greenpeace names H&M as a Detox Leader when releasing its Detox Catwalk, showing how effectively major fashion brands are removing toxic chemicals from their supply chain and tackling water pollution.

Greenpeace states that “H&M’s action on toxic-free fashion puts it firmly at the head of the pack” and places H&M in the “Leaders Group”. Greenpeace also mentions that H&M is the first company to eliminate the hazardous chemicals PFCs from its products. The Detox Leaders are defined as “detox committed companies leading the industry towards a toxic-free future with credible timelines, concrete actions and on-the-ground implementation”. And in September H&M introduced 16 new denim styles made using recycled cotton from textiles collected in the Garment Collecting initiative in H&M stores. The pieces for men, women and kids, are the latest steps toward H&M’s goal towards creating a closed loop for fashion, and will be available in all stores worldwide, as well as online.

“Creating a closed loop for textiles, in which unwanted clothes can be recycled into new ones, will not only minimize textile waste, but also significantly reduce the need for virgin resources as well as other impacts fashion has on our planet,” says Karl-Johan Persson, CEO of H&M. H&M wants to create a closed loop for its textiles, in which the fabrics from unwanted clothes can be recycled into new ones. The aim is to reduce the environmental impact of the fashion industry, by limiting waste that goes to landfill and saving on natural resources used in the production of fabric.

In February 2016 H&M made another step forward in recycling. HRH Crown Princess Victoria of Sweden awarded the winners of the first Global Change Award, an annual innovation challenge for circular fashion initiated by the non-profit H&M Conscious Foundation. Most votes, and a grant of €300,000, were awarded to the Finnish team behind Making waste-cotton new; conversion of waste-cotton into new textile.

To further accelerate the transformation towards a circular fashion industry, the Foundation launched the Global Change Award Network, an open-source database for innovations.

For many years now, Patagonia has been a pioneer in all things relating to unconditional sustainability. Moreover, the company takes an aggressive approach to raising consumer awareness. In August 2015, for example, the New York Daily News reported the following: „Patagonia declares war on the dirty denim business and John Varvatos is in the line of fire”. Im Artikel heisst es:

“The new Patagonia ad campaign promotes its line of organic, Fair Trade jeans. It’s also a direct criticism of the way most other denim is made.” And furthermore: “Patagonia claims its new line of jeans uses 84% less water and 30% less energy in the manufacturing process compared to regular jeans.”

Campaigns of this kind encourage consumers to form an opinion on the subject and take a stance. We will be taking a closer look at this trend in the coming year and expect to see a further surge in efforts to educate consumers and raise awareness of how textiles are manufactured.

## United Nations Framework Convention on Climate Change

In addition to the pull factor for greater sustainability, the push factor resulting from the Paris resolutions is likely to gain new momentum. Between 30 November and 12 December, Paris hosted the United Nations Framework Convention on Climate Change, the 21<sup>st</sup> Conference of the Parties (COP 21) and the 11<sup>th</sup> Meeting of the Parties to the 1997 Kyoto Protocol (CMP 11). The event was chaired by the French Foreign Minister Laurent Fabius. On the evening of 12 December, the conference adopted a climate agreement referred to as the Paris Protocol, which aims to reduce global warming to well under 2°C, ideally 1.5°C.

Most politicians and environmental organisations have rated the outcome of the summit as a breakthrough in climate policy. The French President François Hollande, for example, spoke of the most wonderful and peaceful revolution that has ever emanated from Paris, and the German Environment Minister Barbara Hendricks declared that Paris marked “not the end, but just the beginning of a long journey”. Martin Kaiser, the Greenpeace climate protection expert, commented on the agreement with the words “Paris gives the world hope”, and the German Association for Renewable Energy (*Bundesverband Erneuerbare Energie*) welcomed it as a “powerful signal” and demanded that the targets be followed by concrete implementation measures.

The next step involves ratification of the agreement by the 195 participating countries. According to UN statements, the Paris Protocol will not come into effect until it has been ratified by 55 per cent of these countries which are responsible for a total 55 per cent of all global emissions. The world’s first elected assembly to ratify the Paris Protocol was the parliament of the island state of Fiji in the South Pacific in mid-February.

Despite all the jubilation, the agreement has also been criticised for failing to impose any penalties for non-observance of contractual points even though it is legally binding. A further major problem is the fact that China and the USA together account for around 45% of all global greenhouse gas emissions. Should either of these countries fail to ratify and the other follow suit, the agreement would be doomed to failure.

Prompt action is however imperative and a climate protection policy needs to be put in place immediately, as we are rapidly running out of time to reach the 1.5° target.

Organisations and companies which back the agreement can pledge their support on the website <http://parispledgeforaction.org>, which states: „Minister Fabius, the COP21 President, is calling for non-Party stakeholders to show their support for climate action by joining the Paris Pledge for Action. Participation sends a signal that all actors – Party and non-Party – are moving in the right direction in 2015 and beyond. The Paris Pledge for Action is not meant to replicate the good work already underway by the business, investment and local government communities to address climate change. Rather, it is intended to provide a political signal that demonstrates the breadth of support and scale of momentum for a transition to a low-emission and climate resilient economy.”

So far, this document has been signed by around 1,300 companies, organisations and city councils from all over the world, such as AT&T, AXA Group, BASF, BNP PARIBAS, Cisco, Deutsche Bank, Deutsche Telekom, Fujitsu, Henkel, Microsoft, Nestlé, Novartis, Novozymes A/S, Procter & Gamble, SWISSCOM, Unilever and Vodafone. Signatories from the textile industry are few and far between to date. The only well-known brand to be found is the adidas group.

## Conclusion

On being presented with the 2016 Zayed Future Energy Prize Lifetime Achievement Award, the pioneer of sustainability, Gro Brundtland, made the following statement: „It is quite interesting to realize that the analysis and the recommendations of ‘Our common future’ (*Name of the report, also known as the Brundtland Report*) back in 1987 and of course the tradition of the concept itself, but generally the call for radical change in the future world economy, has been accepted.

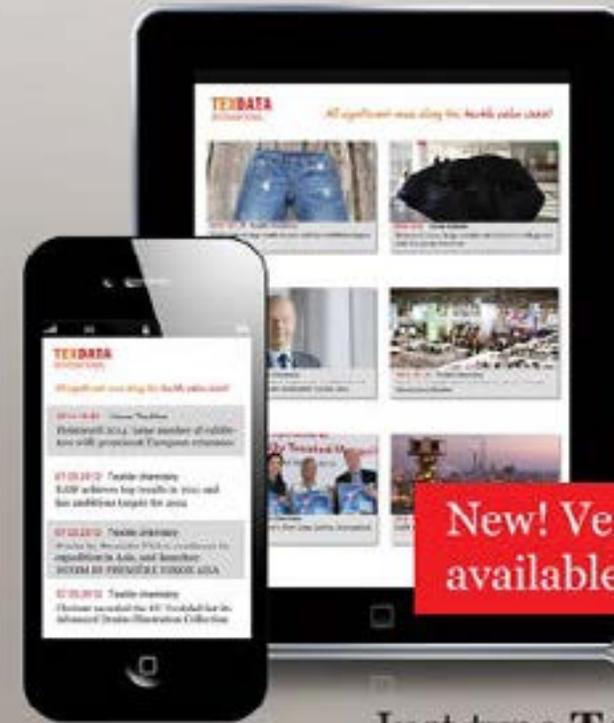
It’s a fascinating story that the concept has been agreed and knowing that this is absolutely necessary. The important thing is, the main message of the report, that we have an inter-generation of responsibility on the destiny of people and the destiny of our planet. This is why we need sustainable development.”

It will soon become apparent whether the Paris Protocol is destined to come into effect, thus providing clear orientation in the drive towards greater sustainability, particularly with respect to intergenerational fairness, and paving the way for countless small-scale measures. Should this happen, 2015 could go down in history as a year of decisive importance for mankind. The budding field of sustainability would then have ample incentive to blossom. In the textile industry, at any rate, there is already an obvious desire for rapid growth all along the textile supply chain. This was underlined in no uncertain terms by the ITMA 2015.



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