Labels

Fast Fashion. The dark side of Fashion

20 March until 20 September 2015

PROLOGUE

Fast Fashion: Fast fashion is a synonym for a mass-produced fashion product that frequently copies even high-end couture designs, and also denotes a specific production and sales-distribution system. In the fashion hierarchy, fast fashion is positioned at the lower end of the market, after haute couture, prêt-à-porter fashion and middle class market fashion. Fast fashion means acceleration – for the globalisation of fashionable mainstream products, for manufacturing and retail (the period from design to delivery can be as short as two weeks!), and for the wearing out and discarding of garments. Fast fashion has produced today's new rapid fashion consumers. It has become a model of economic success, which in turn makes it interesting for haute couture houses. The increase in economic profits, however, occurs at the expense of environmental and social systems. The fast fashion industry has an extremely poor environmental scorecard and is one of the sectors with sometimes catastrophic working conditions and wages below subsistence level. As a reaction to fast fashion, the 'slow fashion' movement is increasingly gaining in importance. It challenges both manufacturers and consumers to adopt a new form of responsibility and respect towards people, the environment and the products themselves.

Slow Fashion: Slow fashion stands for sustainable and conscious fashion. The term describes a change towards more responsibility and respect for people and the environment, as well as a different awareness towards products, their origins and our own consumer behavior. Slow fashion means slowing down – to the benefit of environmentally friendly manufacturing and selection of raw materials, of sustainable production and high quality processing, of fair trade, of the conscious use and durability of clothing. Inspired by other 'slow' movements such as 'slow food', products often originate in a specific region and have short production chains. The individual steps from fibre to finishing are frequently transparent, too. Here chemicals are avoided where possible, and there is an emphasis on the development of new sustainable materials as well as future-proof and resource-conserving technologies. Sustainable fashion is marked with textile seals. Slow fashion not only includes garments made from organic and recycled materials, but also reused clothing. The trend towards reuse is an expression of a strong movement against the principle of throwing items away and buying them again. There are many new clothes-swapping and second-hand platforms on the Internet, some of which even offer designer fashion to rent. The opposite of 'slow fashion' is 'fast fashion'. It refers to mass-produced fashion and uncontrolled consumption. Because of its cheap production model, the true costs are shouldered by the production workers, the environment, the climate and consumers' health.

The textile chain: The textile value chain forms a complex and globally networked industrial and economic construct: it includes all of the production and retail steps involved in the production of textiles and clothing – from textile manufacturing, through garment confection, wholesale and foreign trade, to the end consumer and final disposal. The first step is producing the fibres, either by processing natural fibres or synthetically manufacturing chemical fibres. Afterwards, the fibres are spun, twined into yarn or textured and then woven or knitted to make textile sheets, that is, fabric. The next step after textile manufacture is fabric finishing, usually with chemicals. During this process, various fitting and usage characteristics are added to the fabric, such as non-iron or water repellent finishes, and it may be dyed. Once the fabric has been finished, it enters the clothing manufacture stage, meaning the industrial production of garments, which encompasses cutting, sewing and assembly. The subsequent process steps include transport, retail and distribution. Once the garment has reached the hands of the consumer, its utilisation and maintenance phase begins. The textile chain ends with the disposal and recycling of clothing. As part of sustainable clothing production, concepts are now being developed that allow the textile chain to be closed into a textile cycle.

Consumption

Fashion and consumption: Fashion boosts consumption like nothing else. There is no other segment of consumer goods in which the turnover of goods depends less on wear and tear and more on fickle changes in taste, since constant transience is one of the essential characteristics of fashion. Because of their dependence on seasons, fashion cycles outpace other goods cycles, and this speed is further exacerbated by 'fast fashion', which can feature up to 12 collections per year. Frequently changing product ranges and supposedly new trends lure consumers into shops 20 times or more per year on average. When clothes leave the factory, they are initially just textiles. It is only marketing and advertising that turn them into fashion. In the glamorous haze of the fashion world with its runways, models and star dreams, clothes mutate into 'silhouettes' promising to raise our attractiveness, and seasonal 'must haves'. The fashion industry is largely product-driven, meaning that for every season, fashion designers and manufacturers must tell consumers yet again which clothes they should select. Consumers themselves usually begin their shopping expedition with a blank slate. In contrast to other sectors, for example household goods, purchasing decisions in the fashion segment are highly impulse-driven due to the wide range of purchasing options. Such decisions are often made last minute and therefore point-of-sale (POS) marketing within stores plays a prominent role. At the same time, this unpredictability in the consumer's selection process makes it difficult for fashion companies to plan with any certainty how their customers will react. In general, consumers today have adopted hybrid buying behaviours. Regarding fashion, this means that they mix labels and brands across the fashion hierarchy – from high-end fashion, through ready-to-wear in the middle price segment and fast fashion, to discounter apparel.

Scarcity and surplus: Fast fashion changes consumer behaviour. On average, consumers today own four times as many clothes as in 1980. Cheap consumption stimulates rapid change and a short usage period: some clothes are worn only 1.7 times on average, while up to 20 items hang unworn in the wardrobe before they are thrown out. Since cheap fashion is generally not made for longevity, it frequently spoils more easily and is thus thrown away faster. Even though more and more people have access to fashion in the globalised world, nevertheless over half of the world's population rely on second-hand clothing. The originally donated old clothes reach local markets in numerous countries, especially in Africa, through an extensive, global network of traders. There, they often present the only opportunity to access current and fashionable clothing at reasonable prices.

Second-hand clothing: Second-hand clothing is a mirror of the affluent society. In Germany alone, approximately 1.2 million tonnes of old clothes are disposed of every year. However, in criticizing such overconsumption they also provide positive environmental and economic impacts. Besides preserving the resources required in clothing manufacture, the processing of second-hand clothing creates numerous jobs, both in sorting companies and in global trade.

DIY and Upcycling: The current Do-It-Yourself movement is not a completely new design strategy, however: instructions for making things have always circulated, especially relating to clothing, shoes and other accessories. Likewise, altering and improving garments – now called 'upcycling' – is an age-old craft activity, especially in emergency situations.

Repairs: Fast fashion alters the value of clothing, and is eroding the perceived value of textile craftsmanship. For hundreds of years clothing was maintained, repaired and altered with great care. In addition, the working hours required for this were cheaper than the purchase of new garments. In these times of cheap fashion, however, labour-intensive repairs are now more expensive than new purchases. Frequently, the lower quality of the garments is not worth the skill and effort it would take to repair them.

Statement Paolo Woods, "PEPE": Port au Prince's Fifth Avenue is a waterfront road, just off the harbor, where mountains of second hand clothes bake in the tropical sun. The market, Croix-des-Bossales, is where the slaves used to be sold. Now it receives containers loaded with skirts, pants and shirts from the US. These second-hand garments are

called “Pepe” and it is increasingly difficult to see a Haitian wearing something that has not been previously worn by an American. A t-shirt produced for Wal-Mart in the factories of Port au Prince will be sported by a Texan and then returned to the sender, who, at last, will be able to wear it. This back and forth gives us a peek into the workings of the globalization of the textile industry. The majority of “Pepe” that arrive on the island have been donated by Americans to charities and collection centers, rejected by Thrift shops, and have gone through the sorting warehouses run by Haitians in Miami that discard the winter clothes and other unmarketable items from the lot. But the worst T-shirts, those that would barely be sold in the cheap gift shops of Times Square, those with the dumbest slogans, reappear, thanks to a free-market miracle, in remote provinces of Haiti where nobody has taken the effort of translating such poetry into Creole. It is said that the T-shirt, along with the bumper sticker, is America’s favorite place for self-expression, a kind of personal billboard, where political, philosophical and religious beliefs are condensed. All of this would be amusing and ironic if the “Pepe” trade had not put out of business thousands of Haitian tailors. “Pepe”, or how lousy T-shirts exemplify fifty years of a North-South relationship.

Fashion & Victims: Fast-fashion manufacturers entice their consumers with an intentionally low-end pricing policy so they buy more clothes than they actually need to. This marketing ploy appeals to unconscious human instincts: Opting for a comparatively cheaper offer feeds the illusion of frugality and therefore increases the opportunity for further consumption. Regular end-of-season and clearance-sale campaigns keep creating new incentives to buy. Numerous glossy magazines present the exciting world of stars and celebrities. Fashion brands use this media attention to their advantage by gifting products and turning celebrities into advertising media. Fast fashion in turn transforms these ‘star outfits’ into cut-price versions for subsequent purchase. Such a low-price policy and rapid fashion cycles succeed at the expense of textile workers at the other end of the production chain, forcing them to live under precarious working conditions. They are therefore the real fashion victims.

Limited editions: ‘Limited editions’ are created through the cooperation between fast-fashion manufacturers and star designers and are based on the principle of ‘desirability through scarcity’. Psychologically, human beings automatically assign a higher value to goods with lower quantitative and temporal availability. This decision-making process runs unconsciously in the brain and makes ‘limited editions’ all the more desirable.

Shopping hauls: Fashion consumption fulfils important human needs: our striving for social recognition and self-realisation. Fast fashion stimulates an appetite for purchasing which can then escalate into shopping addiction. It is not possession that hooks shopping addicts, but the kick from buying itself, which acts like a drug by positively stimulating the brain’s reward system. Social media become a public stage, especially for younger consumers, on which to present themselves and their ‘shopping haul’ items. With their home-made ‘haul videos’ they are developing a new film format which is in turn exploited by fast-fashion brands as a lucrative advertising tool.

Statement Taslima Akhter, “Death of A Thousand Dreams”: 24th April 2013, 9am. Becoming a brutal incident of history, a nine-story commercial building Rana Plaza collapsed at Savar, Dhaka, Bangladesh and left more than 1134 workers dead, more than hundred missing and many other wounded. Around a thousand families have found dead bodies of their beloved family members. Many families moved from police stations to morgues in search of their relatives. Many people are still missing. Workers of the Rana Plaza are a part of the 4 million garment workers from Bangladesh. They produce clothes for Europe, America, international markets and international brands. By the tag ‘Made in Bangladesh’ on the products they earn a lot of foreign currency for national economy. With a dream of living a better life, people from villages come to the workers barracks at cities. With the collapse of Rana Plaza all of their dreams have been ruined. Rana plaza collapse raises question to national-international owners, brands and government about their role to secure working condition. It also raises question about all citizens and consumers responsibility. With this documentary photo story I have tried to portray the narrative of the death of thousand dreams.

Statement Elisa van Joolen, '11" x 17"': Why is a garment generally linked to only one brand? Or perhaps one brand in collaboration with another designer? You never see a garment made up of different brands. What people wear on the street, fashion, tells a completely different story: outfits are made up out of different brands and combinations of new and second hand clothing. Magazines even promote combining different brands into one outfit. Wearing outfits without hierarchic distinctions between for example second-hand and high-end fits into today's zeitgeist. Just like the way we use the Internet; everything exists next to each other. One could see this as a new concept of productivity: to reuse, sample and mix existing cultural expressions. That is what I am investigating with the project 11" x 17". I combine different categories from the entire scope of fashion into one piece of clothing. I want to create this kind of plural connection between brands. If you really think about it a piece of clothing, any piece is already a collaboration in itself. It is designed by one person and then the sketch is sent, for example, to Vietnam, where one part is produced and then shipped to China where the buttons are sawn on, then it is shipped back to Europe and put in a store, so there is already a lot of collaboration within any piece of clothing.

Statement Manu Washaus, "SWEATER – study of the possible II": Produced in Shenzhen, Guangdong, the sweaters originate from the same production metropolis where iPhones, laptops, toys, oil-painted reproductions, and many of the other goods we use on a daily basis are fabricated. We, the consumer, have no idea how they are produced, though we catch glimpses. We listen to news about Chinese workers killing themselves to escape depressing working conditions. We see pictures of collapsed textile plants and production halls in Bangladesh. Over 2,000 dead. One worker's life is worth $1,932, we read. The state gives $7000 extra to quiet the relatives of the women and men killed. We read about the anonymity of these people who are exposed to toxic chemicals, hidden from sunlight for 16 hours a day, without a break to use the toilet, with a monthly salary of $20. We read that they are hard to identify, these faceless workers who sacrifice their lives for our affordable, trendy, even ironic clothes and everyday needs. We are inundated with the attractively appalling images of these deaths. We look the victims in the face when we see the news, as we buy our goods, book a flight; order a suitcase for $40. I have researched and found the producer of these novelty pullovers. He has agreed to send me fifteen samples of my custom design with the option for a further, larger order. I will hire him to print and produce press pictures from the collapsed Bangladeshi factory on them as the aesthetic, recurring pattern, which the media provides us.

Economics

Economics and clothing: The textile and clothing industry has strong historic ties with the industrial revolution which took place over 200 years ago. At the same time it is a prime example of globalisation in the 20th century. More than almost any other industrial sector, it reflects global networking both at an economic level and in everyday life. The invention and commercial readiness of synthetic fibres as well as the development of special production and finishing processes have made the mass-production of clothing possible since the 1950s. Growing demand and consumption led to a boom in the clothing industry in western countries. Rising wages and their consequential costs heralded the out-sourcing of labour-intensive clothing production, which still largely needs to be completed by hand, to low-wage countries. The clothing industry is a pioneering sector, as it allows unskilled workers access to work and wages, in doing so helping to promote the further economic development of poor countries. The production of textiles does not require complex, expensive technology and this keeps the need for capital investment low. The most important capital is cheap manual labour. The global division of labour is leading to an international competition to produce, trade and sell clothing. From 1974 to 2004 the Multi Fibre Arrangement (MFA), also known as the 'global textile arrangement', governed the world trade in textiles and garments, imposing quotas on the amount that developing countries could export to developed countries. While developing countries are constantly increasing their share of the global clothing market, developed countries are seeing a constant decline. An increasing number of countries are managing to achieve western quality standards and establish their own competitive textile and clothing industry. In addition, they are creating free export zones to attract foreign investors through low wages and exemption from taxes – with environmental and social standards playing a subordinate role.

Global & local: Although clothing is a simple product, the fast-fashion supply and value chain is extremely complex. While western companies retain control over the capital-intensive design, collection planning and marketing side of the business, labour-intensive production processes from cutting and sewing to packaging are outsourced to Asia. To keep abreast of the prevailing price and deadline pressure, the producers contract out some of their production to sub-contractors, who in turn contract out to other subcontractors. This gives rise to an incredibly opaque situation where customers do not know which factory is actually producing their goods. Following the dreadful events in Bangladesh in 2013, the outsourcing of clothing production is partly repatriated to southern and eastern Europe. The 'slow fashion' movement calls for a return to local and regional production facilities.

Worldwide clothing production: Since 2005 production countries in Asia have developed into the main export countries for clothing textiles. For almost ten years now China has been the largest producer of clothing, with a current market share of 38% of exports worldwide. Bangladesh, Vietnam and India follow in the ranking. Turkey also ranks amongst the leading positions as the largest manufacturer of clothing in the vicinity of Europe. This country in turn passes on contracts to Tunisia and Morocco. In the competition for even lower production costs, large corporations are now migrating into other low-wage countries. Africa is also becoming more and more economically attractive, with low payroll costs and with cotton fibre available locally.

Verticalisation: Vertical product management means managing the textile supply chain from a retail-led perspective. Garments on sale will have already have been reproduced in the background to include new, fashionable details and manufactured at the same low price. It now takes less than two weeks for textile products to go from the design stage to being ready for delivery – something only made possible through process optimisation and buffer-time reduction. Items are mass-produced in globalised sewing workshops with a maximum turnaround time of 1 to 2 days. This often results in production capacities being increased, with each worker spending 10-16 hour days at the sewing machine.

Vidya Software: Customer-oriented and market-driven products are the objective of every collection – and the way to achieve this must be made increasingly faster and more cost-efficient. Human Solutions' software Vidya, based on real body dimension data and an accurate simulation of humans, cuts and fabrics offers 3D visualization in real time for the apparel industry. This means that apparel manufacturers can digitally check size & fit, fabric behaviour, drape and prints on static and moving models, with no time lost for different sizes – and that saves production costs for many samples and variations.

Statement Susanne A. Friedel, "Beyond Fashion": The work "Beyond Fashion" thematizes the dark side of the globalised fashion industry. Woman workers' own words on the labour conditions in these factories were used to inspire the staging of different garments produced by those named brands. Minimum wages, which are not enough to make a living from, are just one dimension of the massive violations of workers' and human rights in the factories producing the garments. It is mostly young women who are facing them. Imitating the companies' advertising imagery, the work aims to address the viewer as a consumer of these items and to shed light on those who are paying the price in the global "Fast Fashion"-business.

Wages and profits: The industrialized nations hold a huge competitive advantage. They have a better understanding of the consumers and their needs, and can sell the cheaply produced goods for a profit. The developing countries do not get to see the revenues generated in the buyer countries. The last mentioned also relinquish their responsibility to uphold social standards through the outsourcing of production. The real losers are the seamstresses. The economic dependence on clothing exports, which makes a decisive contribution to the exporting country's GDP, entices the governments of many production countries to set the minimum wage at an extremely low level – so low that it is often below the living wage. To attract new investors and stop them outsourcing to even cheaper production countries, no union activities are permitted either.

How is the price of a garment calculated?: The price of a piece of clothing is determined by payroll costs, material and production costs, transport and taxes, costs for retail, advertising and profit. The cost components of the different components can vary depending on the quality and retail sales price. Independently of the price the consumer pays for a garment, payroll costs make up just 1% of the total costs, however! By reducing the profit mark-up, higher wages could be paid to the female textile workers for the same sales price.

Textile industry wages: A living wage should be a fundamental right. However, one rule applies in the clothing industry: cheap and quick – something that takes priority over fair pay and improved working standards. Asia is home to 60% of the world's clothing industry. Unskilled seamstresses make up 80% of the workforce. They are forced to work 80 hours a week in return for a starvation wage which could never even be considered a minimum wage. A complete lack of work and health insurance, maternity leave and protection against dismissal, poor workplace safety standards, miserable living conditions and poor nourishment are part of everyday life. Exploitation in the clothing industry also goes on in former socialist countries and in Turkey. The gap between the legal minimum wage and a living wage is partly even greater than in Asia.

Living wages: A 'living wage' is defined as an earned income that allows a worker to feed himself and his family, pay the rent, have enough for health, clothing, mobility and education costs as well as a little money set aside if anything unexpected may happen. A living wage should be the basic wage paid in a regular working week, independently of any overtime or bonuses. This regular working week should never be more than 48 hours worked.

The Asia Floor Wage: 2005 saw the founding of the Asia Floor Wage Alliance (AFWA). It consists of a constantly growing network of Asian trade unions and NGOs. AFWA demands a collective living wage for all textile workers in the countries where clothing is produced. This includes Bangladesh, Cambodia, China, India, Indonesia, Malaysia, Pakistan, Sri Lanka and Thailand. Using the same calculation for living wages across the whole region should stop the 'race to the bottom', where companies move their production facilities into countries with lower costs.

Statement Taslima Akhter, "The life and struggle of Garment workers": "I wanted to be an artist by drawing and making handicraft but my dream is now ruined under the machines, under the rubble and sometimes by fire"- Lija, a garment worker. With a dream of living a better life millions of workers from villages gather in worker barracks in cities. Lija, Modhumala, Shomapti, Masud, Brojesshwar are among them. Among more than 4 million workers 80% are women. Surrounding the garment industries large workers barracks have grown in Bangladesh. Workers toil from dawn to dusk for a minimum wage of BDT 3,000 taka a month (less than 37 $) till 2013. Government declared a new gross minimum wage BDT 5,300 (near about $66) , which is not sufficient for them to survive. These 4 million workers are not more demanding. They don't have any dream to have car-house, even any luxury item in life. They want only coarse rice-cloth and a little roof over the head to stay anyway. They want to send their children to school. They don't want to send their children in same profession but they don't have alternative. How much they get from this little demand? Why their dream is being broken by struggle of daily life, by fire or by building collapse? More than 1134 workers died and several hundred missing by building collapse on 24th April 2013, near about 112 workers died when fire broke out in Tazreen fashion on 24th November 2012. I've tried to portray the life and struggle of those millions of workers specially the women.

Where does our clothing come from?: Many garments sport a 'made in' label. Yet there are in fact no consistent statutory regulations for this designation. As the value chain for clothing often extends over several countries, any indication of origin is not really meaningful, so such indications do not help make the complex production process transparent. Often the 'made in' label is attached in the place where the last manufacturing process, such as the sewing on of buttons, takes place.

Statement Christin Losta, "Toute la collection": Depending on the work required, the manufacture of a made-to-measure dress can take up to eighty hours or more. It is pieced together in many steps in an Atelier, with several details such as the sewing-on of the sleeves reserved for the master-tailor. Fine tailoring has a long tradition that supports a clear professional identity and values.

Environment

Clothing and Chemistry: Clothing protects the wearer against environmental influences and supports with its functions the body in sports, leisure and at work. To meet these various requirements, clothing is treated with chemicals to the extent where up to 1 kg of chemicals – and as much as 300 litres of water – are required for 1 kg of textiles. More than 90 % of these hazardous substances do not remain in the textiles; they are washed out in subsequent rinsing stages as well as in household laundry – and end up in our drinking water and watercourses. Clothing distributed for sale on long freight routes is also treated with pesticides to protect it against mould infestation or pests. Even organic cotton may undergo subsequent treatment. The strict environmental policy requirements in the EU are an additional reason why 90% of our clothing is manufactured in Asia. For importing clothes into the EU there are no statutory regulations or comprehensive import controls that set or check limit values for any chemicals they may contain.

Pesticides: The cultivation of conventional cotton involves around 10% of all pesticides and 25% of all insecticides deployed worldwide. Pesticides are highly dangerous. They may cause chronic damage and acute poisoning. This particularly affects people working in cotton cultivation: according to the International Labour Organisation, between 2 and 5 million people die every year due to pesticide poisoning. In controlled organic cotton cultivation the use of pesticides is not allowed.

REACH – The European chemical regulation on the Registration, Evaluation, Authorization and Restriction of Chemicals: REACH regulates the use of industrial chemicals in the EU. Thanks to the European REACH regulation, all chemicals on the European market and their properties, the quantities and ways in which they are used are, for the first time ever, being recorded. REACH now enables us to systematically understand what the impacts for humans and the environment through the use of chemicals - e.g. in textiles - are. On top of this, consumers now have generally valid rights of disclosure concerning the harmful chemicals contained in products. This supports informed and aware decisions what to purchase and what not.

Processing in the textile industry: The processing of textiles includes all the necessary work stages to produce a textile end-product that meets the demands of both fashion and customers. Essentially, this process technology can be divided into three areas: pre-treatment, dyeing and/or printing and finishing. Different types of processing are possible, depending on the type of fibre. Before a garment can be sewn from a piece of fabric, up to 19 different processing stages are necessary.

Steps to finish a coat fabric made of polyester and cotton:
Pre-treatment:
1. Singeing on both sides (burning off any protruding fibres to ensure an even product surface for dyeing or printing)
2. Desizing (a washing operation to eliminate the strengthening agent added to the yarn before weaving)
3. Washing
4. Boiling (for removing any impurities)
5. Bleaching
6. Drying
7. Heat setting (heat treatment of chemical fibres to make them shrink. The fibres are set in this condition and any shrinkage at a later stage can then be ruled out)
8. Mercerisation (to increase the luster, volume and tear resistance, cotton is treated with sodium hydroxide solution)

9. Drying
Dyeing:
10. Dyeing (different dyes are used for cotton and polyester)
11. Dye setting (depending on the type of dye used, by being heated briefly, with a binding agent, or by chemical bonding)
12. Rinsing
13. Drying
14. Intermediate check
Finishing:
15. Impregnation (paraffins, silicones or perfluorinated chemicals are deployed depending on the degree of impregnation desired)
16. Condensing (thermal treatment for setting)
17. Shrinking (thermal process that stops the textile from shrinking the first time it is washed)
18. Calendering (the fabric is guided through partially heated rollers. It then feels smoother, and the fabric becomes more even and shiny)
19. Final checks

Finishing chemicals and their risks – dyeing and printing:
Substance: Nonoxynol (NPE)
Application: Washing textiles during dyeing.
Hazard: The substance breaks down into nonylphenol (NP) which affects the hormones and is toxic to the reproductive system of fish.
Regulation D/EU: Classified as being of Very High Concern under REACH. Use in the EU is banned. Imported textiles have so far not been regulated.
Alternatives: Look out for textile quality seals and marks which restrict the use of NPE/NP (GOTS, EU Ecolabel, Oeko-Tex Standard 100)
Substance: Azo dyes
Application: The most widely used group of dyes in the textile industry.
Hazard: Some contain carcinogenic aromatic amines.
Regulation D/EU: The use of azo dyes is banned in the EU.
Alternatives: Look out for textile quality seals and marks which restrict or ban the use of azo dyes (GOTS, EU Ecolabel, Oeko-Tex Standard 100)
Substance: Phthalates
Application: Plastics softener (outdoor clothing, imitation leather, PVC prints, dyes).
Hazard: Some phthalates are toxic to reproduction.
Regulation D/EU: 13 phthalates are classified as being of Very High Concern under REACH and may no longer be used in the EU. Imported products are exempt from the requirement to obtain authorisation; however, they are subject to restrictions.
Alternatives: Look out for textile quality seals and marks which restrict or ban the use of phthalates (GOTS, EU Ecolabel, Oeko-Tex Standard 100). Avoid materials containing PVC.

Finishing chemicals and their risks – finishing:
Substance: Organotin compounds
Application: Biocides (pesticides) inhibit odours released from the microbial breakdown of sweat (socks, footwear and sportswear).
Hazard: They are not biodegradable and therefore accumulate in organisms. Some affect the immune and reproductive system. Toxic to humans and aquatic organisms.

Regulation D/EU: Certain organotin compounds (TBT, TPT) may no longer be marketed and their permitted concentrations in products is restricted. Dioctyltin (DOT) compounds may no longer be used in textile articles and footwear.
Alternatives: Avoid 'antibacterial' or 'anti-odour' clothing. Look out for textile quality seals and marks which restrict the use of organotin compounds (GOTS, EU Ecolabel, Oeko-Tex Standard 100).

Finishing chemicals and their risks – tanning:
Substance: Chromium (III) salts
Application: To process animal skins into leather, they need to be tanned. Tanning stabilises and preserves leather.
Hazard: Impurities in the raw material or inadequate quality standards can lead to the formation of soluble chromium (VI) oxide compounds during the tanning process. These are considered contact allergens and can cause an allergic reaction on the skin such as eczema. Chromium (VI) oxide is a potent environmental poison, even at low concentrations. Besides nickel and various odoriferous substances, chromium (VI) oxide is one of the most common allergens.
Regulation D/EU: Use is governed tightly in the EU.
Alternatives: Plant-based tanning with rhubarb-root extract or olive-leaf extract.

Finishing chemicals and their risks – finishing:
Substance: Perfluorinated und polyfluorinated chemicals (PFC)
Application: They are water, fat and dirt-repellent (impregnating agents).
Hazard: They are not biodegradable and therefore accumulate in organisms. They are poisonous, disrupt the hormonal system and are toxic to reproduction. Traces are contained in human tissue, blood and breast milk.
Regulation D/EU: Some are classified as being of Very High Concern under REACH. The production, marketing, import and application of specific compounds is likely to be banned in the EU.
Alternatives: Look out for textile labels which ban or restrict the use of PFCs (GOTS, bluesign). Buy PFC-free outdoor clothing.

Finishing chemicals and their risks – finishing:
Substance: Sodium hypochlorite
Application: Cotton bleaching.
Hazard: Together with the fibre components, active chlorine forms adsorbable organic chlorine compounds (AOX). These highly toxic compounds are detached from the fibre composite during finishing and get into the waste water. They are persistent, fat-soluble and are very difficult to biodegrade. They enter the human body via the food chain, then accumulate in human fat tissue.
Regulation D/EU: Permissible values exist governing the discharge of chlorinated waste water. From a global perspective, however, chlorination is part of the standard bleaching process.
Alternatives: Enzyme technology, ozone bleaches (environmentally friendly bleaching according to the GOTS standard).
Substance: Potassium permanganate
Application: Sodium hypochlorite (NaOCl) and potassium permanganate ($KMnO_4$) are popular, inexpensive bleaching agents. They are typically used together. Potassium permanganate is sprayed to achieve localised effects and wear.
Hazard: Owing to its oxidising effect, potassium permanganate irritates the skin and can cause chemical burns. If it is not washed out correctly after finishing, it can cause skin irritation to the wearer. Permanganate powder causes clouding of the cornea. Both chemicals are highly hazardous to water, causing immense environmental damage if not disposed of correctly.
Alternatives: Ozone bleaches (environmentally friendly bleaches according to the GOTS standard), laser technology.

Sandblasting jeans: Sandblasting involves spraying fine quartz sand onto the surface of jeans with a sand-blasting device. This fine dust gets straight into the bronchial tubes and stays there. After a few months of continuous work this leads to lung disease, called silicosis – which also affects miners. If it is not treated quickly, patients suffocate.

Rivers in pink and jeans-blue: The Tullahan River in the Philippines appears in this season's fashionable colour: pink. People who live along the river tell stories about how the river changes colour several times a day almost every day – depending on what colour dye is being used in the neighbouring textile factory. The rivers in Xintang (Zengchen) in China, in contrast, have an unnatural colour – jeans-blue: waste water from a factory in which jeans are washed pollutes the rivers. Those who suffer are often the bitterly poor people who live in the vicinity of the factories, and who have no access any more to clean drinking water. These two examples are not an isolated problem: 90 % of our clothing is produced in Asia, mainly in China, Bangladesh and India. In all these countries, the use of dangerous chemicals is largely unregulated, waste water treatment plants are the exception. The result: toxic effluent is released into rivers and lakes, mostly completely unpurified. In China alone, 320 million people have no access any more to clean drinking water. Greenpeace has found evidence of toxic substances in factory effluent and in rivers and lakes again and again as part of its Detox Campaign. In the report "A Little Story About A Monstrous Mess" for instance, Greenpeace proved that textile factories discharge toxic effluent into the sea. Satellite images show effluent spreading in the sea like a huge black cloud – the size of fifty Olympic swimming pools. Greenpeace searched for and found the polluter who caused this environmental disaster: the industrial estate "Wubao Dyeing" near the Chinese city of Shishi, where a large part of Chinese children's garments for export are produced. Tests carried out by Greenpeace on the factory effluent detected a whole cocktail of dangerous chemicals, among them nonyl phenol, antimony or chlorobenzenes. The poisoning of the water in Shishi is only the tip of the iceberg. Out of 435 registered effluent stations in China, two thirds failed to comply with environmental standards in 2012. And every fourth simply ignored them entirely. The chemicals accumulate in the sediments, with harmful effects for aquatic organisms and humans.

Aral Sea: As recently as 50 years ago the Aral Sea was the fourth-largest landlocked water mass on Earth. River diversions to irrigate the surrounding cotton plantations, most of all in Uzbekistan, have resulted in the lake surface shrinking to two thirds of its original area. The lake disintegrated into several pools, the eastern one of which dried out completely for the first time in 2014. The Aral Sea's dehydration is among the largest-ever environmental catastrophes caused by mankind.

Clothing & Life Cycle Assessment: The clothing industry has a very negative environmental balance. Large quantities of water and energy in the form of oil, coal and gas are used, not just in the extraction of raw materials and production of the fibres, but also in the manufacturing process. Both electricity and water are used in various rinsing and drying processes, often at high temperatures and under pressure. The waste impact and the exhaust gas emissions along the production and trade routes from the Far East to Europe or North America come on top of this. Consumers also contribute to the negative environmental impacts: particularly large quantities of water, energy and tensides are deployed when clothing is washed, dry-cleaned and cared for. According to the German Federal Statistical Office, 14% of the annual electricity consumption in private households is attributed to the use of washing machines and tumble dryers. The disposal of non-recyclable old clothes also needs a lot of thermal energy.

Cotton- World's most important natural fibre: In their growth phase, cotton plants need large quantities of water and during harvest they require a dry climate. Therefore, they are usually grown in dry areas and artificially irrigated. Defoliants are used in order to ensure that cotton buds ripen at the same time; however, they also act as neurotoxins. Cotton is grown in monocultures, which reduces biodiversity and the acreage for necessary food crops. Artificial fertilisers are used in order to maintain soil fertility. Furthermore genetically modified seeds are used. In fact, 90% of all genetically modified plants in the world originate with just one seed manufacturer. So the farmers find themselves caught up in vicious dependency cycles. The average virtual water content of a cotton T-shirt with a weight of 250g is

2,500 litres, but could be up to 12,000 litres, depending on cultivation area. The term ‘virtual water’ stands for the amount of water that is required to produce a specific product.

Chemical fibres: Chemical fibres can be synthetic or of natural origin. Synthetic chemical fibres are generally produced from crude mineral oil. Natural chemical fibres are made of cellulose, usually beechwood, eucalyptus and bamboo, which are pulped with the aid of chemicals. This fibrous mass is then pressed through fine meshes to release the fine filaments. In contrast to natural fibres, chemical fibres can be designed and produced according to their intended application area and fibre length.

Curator: Dr. Claudia Banz, tel. +49 (0)40 428134-400, e-mail: claudia.banz@mkg-hamburg.de
Press contact: Michaela Hille, tel. +49 (0)40 428134-800, fax +49 (0)40 -428134-999, e-mail: presse@mkg-hamburg.de
Press images: download at www.mkg-hamburg.de
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