

THE CHALLENGE OF NATURAL FIBERS

Gabriele Brunero and Elena Schneider

From natural fibres to man-made fibres

For thousands of years the manufacture of yarns and fabrics was based only on textile *natural fibres*, that can be found directly in nature and that are picked up and processed by men. For several centuries, natural fibres commonly used were wool, silk, flax and hemp; the last two were first plants expressly cultivated for textile purposes. The great diffusion of cotton, currently the most important natural fibre, is a relatively recent fact and followed the so-called “industrial revolution”, that took place in Great Britain during the XVIII century. Only at the end of the XIX century and particularly in the following, with the progress of civilisation and of science, men began to take the place of the nature, with the making of *chemical fibres*, better known as “*man-made fibres*”.

During the 1930s of XX century fibres made by transformation of natural polymers (especially celluloid) began to erode the monopoly of cotton, wool and



A Bird's-eye View of World Natural Fiber Conference in Rome, Italy

other natural filaments. Production of these *artificial fibres*, such as acetate, cupro and viscose, rose from 15,000 metric tonnes in 1920 to 3.6 million tonnes 50 years later. The period of maximum brightness was between the end of 1950s and the beginning of 1960s, when artificial fibres covered even 19 per cent of world production of textile fibres (see *Chart 1*).

Greatest transformations happened with the diffusion of

synthetic fibres, obtained through the chemical synthesis of non-renewable fossil fuel resources; some examples of these fibres are acrylic, aramid, elastane, polyamide, polyester and polypropylene. In 1950 synthetic fibres represented less than one per cent of world production of textile fibres, but in the following years this percentage grew very much. At the end of 1960s production of these fibres exceeded that of artificial fibres and in the 1990s went over production of cotton, the most utilised fibre in the entire century. In the last decade, furthermore, manufacture of man-made fibres moved from developed countries to developing economies, which hold more than three quarters of world production.

Nowadays the first fibre in terms of production and consumption is polyester. Its production doubled in the last ten years and amounted to 30.7 million tonnes in 2007, two thirds of which are manufactured in Popular Republic of China. Quantities

Chart 1 - World production of cotton, wool and man-made fibres, 1900-2007

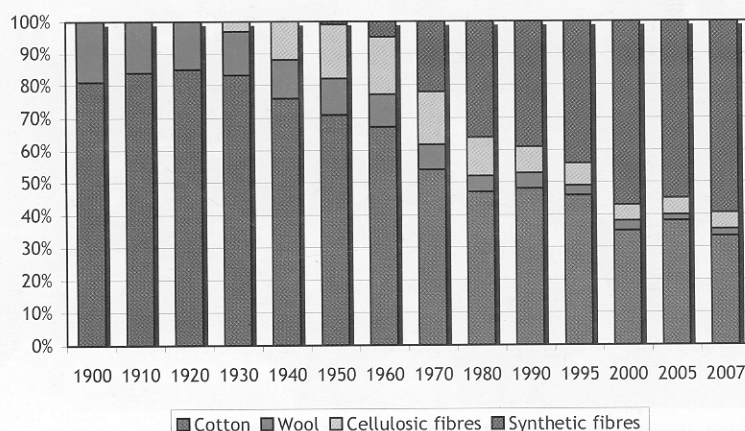
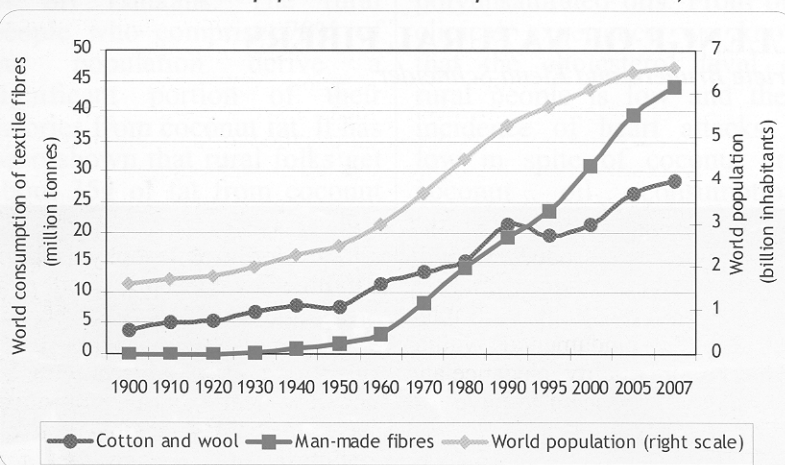


Chart 2 - Growth of world population and consumption of natural fibres, 1900-2007



produced began to exceed that of cotton from 2003. Other synthetic fibres of large utilisation are, for example, polyamide, acrylic and polypropylene. Developed countries produce nearly half of world quantities, but relevance of these fibres is being reduced in last decades, in favour of polyester. The significance of artificial fibres has been eroded by the success of synthetic materials. Besides to real absence of properties, these fibres undergo also the effects of possible environmental consequences bound to making practices. Innovative fibres of recent development, for example obtained from a process of spinning in an organic solvent, such as lyocell, have very slender market shares.

The most important natural fibre remains cotton. But if in 1950 it covered 71 per cent of world consumption of textile fibres, in 2007 this percentage was scarcely 35 per cent. The decline of wool is more manifest: from 11 per cent in 1950 (and 19 per cent in 1900) to the actual 1.5 per cent. Consumption of residual vegetable fibres, such as coir, flax, hemp, jute, ramie and sisal, is constant around 6 million tonnes per year. The demand of textile products, and therefore of fibres, grew very quickly in the last 50 years, due to improvement of standard of

living in developed economies and rapid growth of world population (see Chart 2). The increase of world consumption of textile fibres was 2.4 times from 1900 to 1950, but about 8 times from 1950 to 2007. In 1950 a world population of 2.5 billion corresponded to an average per capita consumption of nearly 5 kilograms of fibres; now a

population of 6.6 billion uses about 12 kilograms of fibres per capita during a year, and 25 kilograms only in Western Europe.

Nowadays natural fibres cover 43.7 per cent of world market and since the beginning of 1990s man-made fibres have been the most important fibre type in terms of volume. The average growth annual rate in the last 30 years for man-made fibres accounts for 4.3 per cent and for natural fibres it amounts to 2.3 per cent.

The causes of change

There are many reasons on the basis of this transformation. First of all, garments seem to become a non-durable good, like bread or fruit. It is not essential that they last long, but it is important that they are cheap. In many cases



Natural Fiber Exhibition in Rome, Italy

traditional two seasons of fashion (spring/summer and autumn/winter) become four or six seasons, with a quick renewal of the supply. It is the so-called "fast fashion": in a world market full and competitive, the success of brands like Zara, Hennes & Mauritz or Mango demonstrate that a low price and a rapid regeneration of collections are crucial factors to attract consumers.

Secondly, in many cases the keen international competition compels firms to contain production costs, both in clothing and in other application areas of textile fibres.

Thirdly, consumers' needs change. The contemporary lifestyle, very dynamic, expands requests for easy-wear and easy-care products, often with "intelligent" characteristics (stain or water repellence, insect repellence, abrasion resistance, anti-static or anti-bacterial behaviour, UV-protection, odour absorption, etc.) for improved human performance or for innovative technical applications.

The great advantage of man-made fibres, in comparison with natural fibres, is their large functionality. They can be planned "made to measure" according to their specific purposes and they can be mixed with natural fibres to combine their respective benefits. Moreover, man-made fibres usually have an economic expedience that justifies their growing employ instead of natural materials.

What about the future?

On the basis of sustained demand from highly industrialised countries and of strong growth in quickly developing economies, especially in Asia, the consumption of textile fibres is expected to increase by 4-6 per cent per annum in the next decade. Obviously, man-made fibres are expected to grow faster than the natural ones.

But is it really certain?

It is not possible to stop human evolution and, therefore, to eliminate consumerism. However, it is possible to change the course of this evolution, by matching together aesthetics, ethics and life quality through a more conscious consumption of products strictly linked to their origins, and by generating emotions through maintaining fundamental values like tradition, quality, elegance and naturalness, that seem to have lost their meanings.

The market evolution will depend on prices of raw materials (agricultural or not) and on costs of their manufacture. In developed countries, furthermore, this evolution will depend significantly on immaterial factors, such as fashion tendencies and preferences of "new" consumers. There are a growing number of purchasers that become more concerned about the ecological and ethical impact of what they buy, towards "slow fashion" criteria. Ideas of corporate social responsibility, ethical marketing and sustainable development are ever-growing essential in every context, last but not least textiles and clothing.

In conclusion, it is awkward to make natural fibres in competition with man-made fibres, because both assure their indispensable contribution to the quality of textiles. But it is very important to make consumers to understand: using more natural fibres means a great contribution to our Mother Earth and to millions of farmers and breeders, which work exclusively in natural fibres' world.

The promotion of natural Fibres at Terra Madre & Salone del Gusto 2008

Slow Food is an international association founded in 1986 with the aim of re-establish the importance of pleasure to purchase and eat food, in the face of the "fast food" phenomenon. Slow Food is defined as appreciate food through enjoying different recipes

and flavours, recognising different production areas and producers, and respecting the agricultural seasons. Over the years, these ideas have become very popular across the world; at the present, the association has more than 100,000 members in almost 130 countries.

Slow Food's philosophy is based on three key concepts: good, clean and fair. "Good", because everyone has the right to eat quality food that is pleasurable and secure; "clean", because producers have to be responsible for any pollution and damage that food production causes to people or environment; "fair", because people have the right to work in a safe area and earn enough money without exploitation, in every stage of production and distribution.

To promote these principles, Slow Food and its partners organise two biennial events. The first is an international gastronomic exhibition, the Salone del Gusto, which literally means "Show of Taste". The second is Terra Madre ("Mother Earth"), an international meeting that brings together food communities, chefs and academics, to work towards increasing small-scale, traditional and sustainable food production.

For the first time, during the last edition of Terra Madre, that took place in Turin (Italy) from the 23rd to the 27th of October 2008, there were 74 producers representing textile natural fibres, next to the network of food producers. The presence of natural fibres had the aim to create a network among all these producers, to help them exchange information about breeding and cultivation and to stimulate innovative ideas and projects with natural fibres.

During the five-days event, the producers met and shared their opinions regarding problems and proposals about natural fibres' world. Delegates arrived from all over the planet (Argentina,

Australia, Bolivia, Brazil, China, Egypt, France, India, Iran, Italy, Kenya, Mongolia, New Zealand, Peru, South Africa) in representation of animal (alpaca, cashmere, guanaco, llama, mohair, silk, vicuña, wool) and vegetable (broom, cotton, flax, hemp, jute, sisal) fibres. Producers were host in Biella, a famous Italian textile district.

A natural fibres area was set up inside the exhibition Salone del Gusto to remind that “good taste” should be not only in the way men eat, but also in the way men dress. The “good, clean and fair” quality concept can be used in textiles and clothing too.

The story of the natural fibres from the picking of raw material to the manufactured product was

showed through images and words and an artistic work, conceived by the Italian artist Michelangelo Pistoletto, adorned this “Square of Natural Fibres”.

For didactic, educational and recreational purposes, a didactic laboratory was conceived for children and a booklet narrating the story of natural fibres was distributed to all the visitors. In the following weeks it was also distributed to primary schools in Piedmont region, because education of tomorrow’s consumers is fundamental.

The entire initiative involved some textile companies, as partners and sponsors, which represent the first step towards the creation of the “slow” network for natural fibres:

Ermenegildo Zegna, that is a landmark in the world for high-quality fabrics and men’s clothes; Schneider Group, one of the biggest animal fibres suppliers; Cottonificio Albini, the biggest European producer of high-quality fabrics for shirts; BluLino, the trademark that identifies an excellenct range of yarns, fabrics, clothing and household articles, manufactured in Italy and in other European countries with carefully selected flax.

Gabriele Brunero and Elena Schneider are responsible for the project “The promotion of Natural Fibres at Terra Madre & Salone del Gusto 2008”, and Gabriele Brunero is a research-worker in the same project.



A quick, easy method to allow anyone safely into a coconut to drink of living water



- ~ Portable (pen sized)
- ~ 304 Stainless Steel
- ~ CNC precision milling
- ~ Mechanical advantage uses the coconuts' weight to make a clean hole for drinking/pouring
- ~ Penetrates coconut shell up to 11 months old
- ~ Many many other uses!

AUD \$35.00 + post

Order online Paypal preferred www.cocotap.com



COCO-SPLIT

THE NUTCRACKER SWEET -



CRACKS THE BIGGEST EDIBLE NUT ON THE PLANET SWEETLY IN HALF

Do away with the machete in the kitchen one sharp hammer blow on the Cocospplit gives a perfect result every time.

Neat halves are best to get the kernel out, and neat shells are most useful.

Made in Australia.

Export Price **AUD \$114.00** plus postage.

Full details and videos on www.cocosplit.com