



## PLENTY OF COVERS!

### *Textiles, our second skin!*

Consumers want clean and healthy clothing, the commercial houses and the clothing companies want a clean image! Consumer interests and the interests of producers and commerce thus meet! For this reason consumers can really exert power when shopping for clothing, show the respective companies that they keep their eyes open, and that they care for the conditions under which products are produced and how they are handled. This module aims at motivating consumers to cultivate this awareness.

### 1. Subject-specific information

#### 1.1 What do we expect of clothing?

- ◆ clothing should protect: against wind, rain, heat or cold, and against injuries (work clothes).
- ◆ clothing should be functional [40], e.g.: hard-wearing, of tensile strength, non-fading...
- ◆ clothing should show physiologic qualities like being comfortable to wear, being well-tolerated by the skin, hygienic;
- ◆ clothing should be easy to wash, clean, iron...
- ◆ clothing should be representative by its colour, type, material, and the qualities of the material;
- ◆ clothing has a symbolic value (sexy, reserved, juvenile, trendy, sporting, etc.).

While today the functional qualities of clothing do not anymore play an important role (except for work clothes and sports clothes), consumers care much for qualities of representation. For many people clothing contributes substantially to the development of identity and self-esteem. Especially for young people clothing ranks high because it is the expression of a certain lifestyle. Clothing effects our health and our environment fundamentally. When examining the importance of clothing these facts should also be analysed.

#### 1.2 Criteria for textiles which are healthy, as well as socially and ecologically acceptable

The quantity of textiles we use has become an indicator of industrialisation and affluence. Textiles are also a question of prestige. Not being dressed appropriately affects the general mood and causes a feeling of uneasiness.

But textiles can also jeopardize our health:

- ◆ residues from textile handling and washing can cause allergies;
- ◆ fumes which develop when ironing materials which have been treated with formaldehyde can irritate the respiratory tract and also cause allergies;
- ◆ clothing can inhibit the normal breathing of the skin;
- ◆ clothing which is too tight can deform organs (lungs, intestines) and cause skin-eruptions and nerve-paralysis (jeans which are too tight, - calves), they can even be detrimental to the quality of sperm;
- ◆ mini-skirts or uncovered bellies can make a person catch a cold.

#### Which are the criteria for environmentally and socially acceptable clothing?

- ◆ Ecologic production, including the raw materials (air, water, energy, mineral resources)
- ◆ usefulness and durability

- ◆ environmentally acceptable cleaning (washing instead of dry-cleaning)
- ◆ recyclable
- ◆ socially acceptable circumstances of production [41]:
- ◆ no forced labour but voluntary occupation;
- ◆ no discrimination
- ◆ no child-labour
- ◆ adequate wages
- ◆ adequate working hours (less than 48 hours per week)
- ◆ acceptable, not degrading working conditions
- ◆ observance of industrial laws

### 1.3 Textile fibres - basic knowledge

#### Cotton

Cotton is the most important fibre-plant and is likely to keep its leading position because of its excellent qualities. For this reason a detailed description will follow. Material made of this fibre breathes and can bind humidity in a proportion of up to 24% of its weight without feeling damp. It is of tensile strength and hard-wearing, does not charge itself electro-statically, feels good on the skin, and is simple to care for. But the cultivation of cotton and its processing creates some problems: the plant makes high demands on climate, soil, and water-resources. Enormous quantities of fertilizers, insecticides, and withering-agents are used for its cultivation. On a global level about one fifth of all employed fertilizers and pesticides are used on cotton fields. Generally practiced mono-culture, without plant-rotation, is only profitable with intensive fertilisation and the use of pesticides, because the cultures are attacked by many kinds of pests.

Cotton is grown on huge plantations and normally harvested by machines. About 14 days before the harvest, when about 70% of the cotton-pods are ripe, large quantities of withering-agents, which are highly toxic and thus harm people as well as the soil, are sprayed from airplanes over vast territories.

The WHO (World Health Organisation) estimates that every year the health of about 1,5 million people suffers from the use of pesticides on cotton-fields, and that about 28000 people die of the consequences.

Natural, untreated cotton does not fulfil clothing-physiologic expectations because the cuticula or outer membrane of the fibre contains wax, and rejects water and sweat, which form drops on the surface. It also causes high chemical pollution. By cooking the fibre in lye the membrane is removed, and the fibre loses up to 20% of its previous weight. Most of the pesticide is also washed out, but as a consequence the water which was used is highly contaminated and its disposal causes major problems for the respective companies.

During further processing cotton is coloured and "refined" by the use of different chemicals. It is bleached and mercerised. Some of it is "highly refined", - it is made into fabrics which do not wrinkle, are easy to wash, and do not need ironing. For this purpose the fibre (the same process is used for linen) is treated with formaldehyde or its substitute glyoxal. Formaldehyde is among the ten most allergenic substances and is known to cause cancer in animal-tests. Glyoxal has not yet been fully examined, but we know that it can cause kidney-disorders, and irritations of the skin and the eyes. The concentration of chemicals of refined fabrics is very high, - 100% cotton can contain 20% of chemical substances, which means that the material can not be disposed of by composting.

"Easy-care" refinement can be identified by tags which show names like Cottonova, Rapid-iron, No-iron, or Mini-care. Ironing-recommendations (heat-regulation 2) provide another clue, because higher temperatures make the synthetic resins melt and stick to the iron [42].



### Linen

Linen is one of the oldest cultivated plants and has many good qualities, especially from an ecological viewpoint, because it does not harm our environment. It is native in Europe and in our regions it does not need additional irrigation. It also needs less fertilizers and pesticides than other fibre-plants. The highly polluted waste-waters from "roasting" the fibre in water are ecologically problematic, but the other plant-residues are biological and can be composted or recycled. 100 kilo of dry flax-stems yield 25 kilo of seedpods, from which oil can be produced, and 75 kilo of flax-straw which is used to produce the fibres.

But in spite of these positive qualities linen is not likely to be broadly used, because of the qualities of the fibre, which needs extensive care. Fabrics wrinkle strongly, and although they show tensile strength and do not tear easily, they are not resistant to rubbing. For this reason machine-washing, with its long process of rubbing, wears out the fibre.

Although linen has become fashionable again it will never be a serious rival for cotton.

### Hemp

Hemp is also an old cultivated plant and was probably brought to Europe by the Romans. In Germany its cultivation was long forbidden, but now varieties which contain but small amounts of THC (tetrahydrocannabinol, cannabis) are again permitted and considered of economic value. Like linen, it is ecologically unobjectionable, and resistant to tearing, but not to rubbing, but the fibres are coarser than linen. The fabric wrinkles easily and is not totally white because it is difficult to bleach.

In Germany, there are no places where hemp-plants are processed to produce fibres. Textiles are mostly imported from the Balkan Peninsula and from Russia. Distances of transportation are considerable, but less than for cotton.

The positive ecologic balance is ascribed to high yields. The fibres are made into bank-notes and thin paper. All residues can be recycled, and are used for the production of chipboard and insulation. The seeds are used for oil, and also for a range of other high quality products: cosmetics, soaps, colours, cleansing agents, and remedies. The compressed seeds are used for feed, and the rest rots away without leaving residues.

In spite of these ecologically positive qualities hemp is likely to remain an exclusive product for a minority.

### Wool

Wool adds up to only 5% of the world-wide production of fibres. In Europe, only a small fraction of the existing demand can be covered by inland-production. The rest is imported, mostly from Australia, New Zealand, South Africa, and Uruguay, where sheep are held in large herds. In order to avoid infection by pests, insecticides which adhere to the particles of lanolin (wool-fat) are used. For the wool-processing industry the disposal of the waste-waters from washing the wool represent a big problem, although lately woollen clothing (mostly for infants) which regards the strict criteria of Demeter\* has been produced.

Wool is frequently treated in order to make it machine-washable and reduce the tendency of the threads to stick together like felt. For this purpose the minuscule "scales" which protrude when it is spun are either flattened by oxidation, or by the use of enzymes, or the fibre is covered with a thin layer of synthetic resin. But such processing is problematic, primarily because of the polluted waste-waters.

### Silk

For more than 5000 years mulberry-silk has been the most precious and most luxurious of all natural fibres. Thanks to publicity and a corresponding supply the purchasing power of Europeans has triggered a real silk-boom: from 1975 to 1995 the production of silk has more than doubled.

In the main supplier-countries China and India entire villages and entire regions have specialized in the cultivation of silkworms. Rapidly, the offer exceeded the demand, with the result that up to the present day too much silk is produced, and sold at dumping-prizes. This development has bestowed serious problems on the producers.



As in Europe the silk-industry has almost died out, and mostly finished products are imported, little is known about the processing of the fibre or subsequent treatment of the fabric. Probably synthetic-resins are applied to produce a certain weight, make the fabric soft to the touch, and make it look fashionable.

Pure silk, which is unwound from the cocoon, is ecologically and from the viewpoint of health totally inoffensive, because the caterpillar of the mulberry-spinner is extremely sensitive and reacts strongly to pesticides. Ecological and health-related acceptability depends thus on further processing and colouring.

Silk has high tensile strength and does not tear easily. It also maintains its form and can absorb much humidity. But it is nevertheless not suited for everyday-use because it is sensitive to perspiration and requires special care. For this reason its share on the worldwide production of fibres is only 1%.

### Chemical fibres

Chemical fibres shall be only shortly mentioned in this context. They are of two kinds: such which are produced from cellulose, and such which are synthetic. Viscose and Modal are the most common fibres produced from cellulose. For both of them the raw material is wood. The label depicts a tree or a leaf which suggests that they are natural fibres. But in reality they are chemically processed and their production uses high amounts of energy and water.

Synthetic chemical fibres are always produced from limited raw material, but only about 0,4% of crude oil is used for the production of fibres. It is difficult to estimate to what extent the production of synthetic chemical fibres pollutes the environment. Of course some problematic chemicals which are difficult to dispose of are used. But in order to reduce costs the whole production happens in a closed system which includes disposal according to regulations, and at least in Western Europe environmental pollution is reduced to a minimum. Waste occasioned by production is immediately recycled. The amount of energy needed for production varies considerably for the different sorts (polyester, polyamide, poly-acryl, polypropylene) but is constantly further minimised by improving the methods of production. It is generally lower than the energy which is needed for the production of natural fibres.

## 1.4 The destination of old clothing

In Germany every year about 880 000 tons of old clothing is discarded. About half of it is directly thrown into the garbage, and ends thus on the dump or is burnt. One third is collected and passed on to welfare-institutions or commercial organisations.

A small fraction goes to second-hand shops, is passed on to friends, or is made into new pieces of clothing. Trade with old collected clothes is a lucrative business. The raw materials are free and can be sold for up to 350 € per ton to enterprises which assort them. Textiles in very good condition go to local second-hand shops, winter-clothes go primarily to Eastern Europe, rags and worn-out clothes are recycled; but a major part is exported into developing countries, and sold on the market at a very low price. This often presents a serious threat for the native textile industry, and can even cause its ruin, because it cannot compete with the low prices [43].

### *Product-typifying of textiles*

Advertising slogans like "nature-fibre", "eco", "natural fashion", or even "pure cotton" are meaningless and misleading. The chemicals which were used are simply kept secret. While in Germany textiles are typified according to the law for "food-items and items of personal need", Austria clings to another law which regulates the use of chemicals. Consumers should know that it is absolutely important to wash textiles before wearing them for the first time.

So-called quality-labels for textiles do not always inform of the actual quality and possible harmful ingredients. The labels can come from the producer (Green Cotton), from associations (Öko Tex Standard 100), from institutes and enterprises of a given branch, or from big retail shops. The layman is not really given the possibility to know the difference between self-given and seriously awarded labels of quality or environmental acceptability.



But knowing what we wear and what we use for a cover is important, because it exerts an influence on our body. By knowing which fibres were used we can deduce how "skin-friendly" a certain piece of clothing is (whether it can absorb sweat, whether air can pass through, whether it warms, whether it charges itself electrically...).

Textile labelling also prevents wrong care (e.g. washing and ironing at temperatures which are too high). Fabric sold by the meter must be labelled in the same way as clothes. If the consumer respects the instructions, the seller has to come up for occurring damage. This also holds true if the product was taken to a dry-cleaning or washing service. In order to be in the position to complain about defective clothing, and press respective claims, it is necessary to keep the bill.

- ◆ **Textile labelling** is mandatory for all fabrics sold by the meter (even if it is on the bale) and all finished products, with the exception of individually designed items like hats, other head-gear, etc.). Textile labelling must show which percentage of which fibre a garment contains.
- ◆ **Care-instructions:** They must be permanent, and contain symbols which inform on the right care.

### Further literature and websites

Wichterich, Christa (1998): Die globalisierte Frau. Rowohlt, Reinbeck

Musiolek, Bettina (1997): Ich bin schick und du musst schuften. Frauenarbeit für den globalen Modemarkt. Verlag Brandes & Apsel, Frankfurt

Mackwitz, Hanswerner; Hingst, W. (2000): Reizwäsche. Wien

[www.cleanclothes.org](http://www.cleanclothes.org) - CCC - Clean-Clothes-Campaign

[www.oneworld.org/cw/](http://www.oneworld.org/cw/) - Corporate Watch - Website über transnationale Unternehmen und ethisches Konsumverhalten

[www.laborrights.org/](http://www.laborrights.org/) - International labor rights Fund mit speziellem Fokus auf Kinderarbeit, Zwangsarbeit in Asien und Teppichindustrie.

## 2. Didactic processing

	Introduction/ orientation	<b>Heaps of covers! Textiles, our second skin!</b>
		Plenum
1	Methods	<p><b>Question round-about:</b> On prepared flipchart-sheets which are laid out in a circle on the floor the participants write questions regarding specific aspects (each sheet is for a specific aspect). Possible aspects: environment, health, functionality, social context, economy, psychology, - all in relation to textiles. Each participant considers all aspects.</p> <p><b>Reflection:</b> The posters are hung up on the wall where all can see them. A discussion in the plenum shows how complex the topic is, and puts up a structure, based on the different aspects.</p>



2	Objectives	<ul style="list-style-type: none"> <li>• to question a product</li> <li>• to become aware of the different functions of clothing</li> <li>• to explore individual needs</li> <li>• to realise the problematic nature of the production of textiles</li> </ul>
3	Contents	<ul style="list-style-type: none"> <li>- functions and implications of the consumption of textiles;</li> <li>- general understanding of the production chain of textiles;.</li> <li>- dictate of fashion or self-determined use of clothing?</li> </ul>
4	Duration	60 minutes
5	Material	<ul style="list-style-type: none"> <li>✓ prepared flip-chart sheets, markers</li> <li>✓ cards, markers</li> <li>✓ pin-boards, adhesive tape</li> </ul>

	<b>Planning</b>	<b>Heaps of covers! - Textiles, our second skin!</b>
1	Methods	<p><b>Group-work</b> Each group is given material with information on the conditions of production of different textile fibres. The weak points of the production-chain (ecologic, economic, health-related, and social aspects) are written on a poster.</p> <p><b>Exercise:</b> The participants are shown two foils which illustrate the problems arising from the disposal of textiles. Using the method of brain-writing they develop alternative concepts, and present them in a diagram.</p>
2	Objectives	<ul style="list-style-type: none"> <li>• learning about the successive steps of textile production for different fibres, and their respective problems</li> </ul>
3	Contents	<ul style="list-style-type: none"> <li>- fibre-qualities and the chain of production</li> <li>- economic, ecologic, social, and health-related problems in connection with the chain of production</li> <li>- ecologically and environmentally acceptable disposal and recycling of textiles</li> </ul>



4	Duration	90 minutes
5	Material	<ul style="list-style-type: none"> <li>✓ text: textiles – basic product-information</li> <li>✓ prepared posters, on poster-paper, with spaces left to fill in, pens</li> <li>✓ 2 OH- transparency: disposal of textiles, second-hand textiles in third world countries</li> <li>✓ instructions and prepared sheets for „brain-writing“</li> <li>✓ brown paper, thick markers of different colours</li> </ul>

		Heaps of covers! Textiles, our second skin!
		Translation into action
1	Methods	<p><b>Application of received information to product-descriptions:</b> The participants are given two examples of product-description of blouses, from a renowned catalogue, and lists of criteria of textile labelling. These are analysed, and missing aspects are complemented.</p> <p><b>Group-work:</b> small groups redact examples of ideal product-descriptions for different garments (hiking-pants, business-blouse, baby-jacket, rain-jacket, work-pants) which contain all needed information.</p> <p><b>Presentation and comparison</b> of results</p>
2	Objectives	<ul style="list-style-type: none"> <li>• the capacity to test and classify labels</li> <li>• being able to discern what is essential when examining product-descriptions, and setting up resulting priorities for own buying-decisions</li> </ul>
3	Contents	- the principal textile labels with their advantages and disadvantages
4	Duration	60 minutes
5	Material	<ul style="list-style-type: none"> <li>✓ list of the principal textile labels and the criteria which they fulfil</li> <li>✓ product-description: blouse</li> <li>✓ pin-boards, brown paper, normal paper, markers</li> </ul>

	<b>Testing/ evaluating</b>	<b>Heaps of covers! Textiles, our second skin!</b> Which changes regarding my consumption of textiles can I make and do I want to make? Which qualities should a garment which makes me feel well and which I would like to wear more than 1 or 2 seasons fulfill? What could it look like?
1	Methods	<b>Group-work:</b> in small groups the participants create a list of criteria which give an answer to the above questions. They design a garment which corresponds to these criteria.  Using different materials they create a respective design; they are free to choose their own technique, e.g. drawing a simple sketch, or creating a model with crêpe-paper or pieces of fabric. Their creations are presented in a small <b>fashion show</b>
2	Objectives	<ul style="list-style-type: none"> <li>• draw personal consequences based on the presented information and respective experiences</li> <li>• develop the readiness to change attitudes</li> </ul>
3	Contents	- creative translation into practice of an example of sustainable consumption of textiles.
4	Duration	60 minutes. <b>Important:</b> do not give the participants more than 1/2 hour for creating their designs, - this measure enhances creativity!
5	Material	<ul style="list-style-type: none"> <li>✓ paper, pens</li> <li>✓ pieces of fabric, clothe-pins, crêpe-paper, adhesive tape, glue, etc.</li> <li>✓ optional: drinks to offer during the "fashion show"</li> </ul>