Environmental Research, Engineering and Management, 71(2), 3-4
Aplinkos tyrimai, inžinerija ir vadyba, 71(2), 3-4
http://erem.ktu.lt

ISSN 1392-1649 (print)
ISSN 2029-2139 (online)

Editorial

Ecology in Fashion Industry: from Use of Ecological Materials to Promotion of Slow Fashion. Impressions from the Conference *Industry Engineering 2015*

Prof. Dr. Virginija Daukantienė
Department of Materials Engineering, Faculty of Mechanical Engineering and Design, Kaunas University of Technology, Kaunas, Lithuania
E-mail: virginija.daukantiene@ktu.lt

The fashion industry impacts on people in many ways, from textile fibres and material engineers working in the clothing industry to customers facing with the end-of-life of garments. The fashion industry has different stages of production often taking place in different parts of the world. Thus, the control of the total clothing life cycle is very complex. For example, if retailers and brands do not know the origins of their materials, it is impossible to identify standards of sustainability.

There are some ways to solve ecology problems, e.g. use ecological materials, propagate sustainable fashion and replace fast fashion with the slow one.

Fast fashion clothes are manufactured using synthetic fibres, which raise the problem of the use of oil to create polymers, e.g. acrylic, polyamide and polyester, or inorganic materials. Unsustainable man-made fibres take longer to degrade in landfill areas. Even when clothing is made from natural materials, such as cotton, problems still remain, such as pesticide use in cotton growing, water use, genetic modification, animal welfare and others. Organic cotton production still accounts for less than one percent of total cotton production. In order to eliminate these problems, there is growing interest in eco-fibres, which are biodegradable, e.g. bamboo, soy, algae, nettle, etc.

Today, hardly any of garments sold in stores are made from clothing material consisting of only one fibre type; mixtures are applied. Moreover, taking into account that increasingly used waterproof polymeric coatings, zippers, trimmings, buttons, etc. are made from other materials (e.g. plastic, bone or metal), usually the finished product is of high complexity and very difficult or even impossible to recycle.

Nowadays, the clothing industry aims to design fashionable products together implementing the principles of ecology. Manufacture of ecological clothing requires using ecological textiles, the production processes of which care for the environment, i.e. they conserve energy and water resources, and efficiently utilise textile materials in the garment cutting stage to reduce textile waste. This is one of the main tasks raised for clothing designers-engineers managing modern computerised design systems.

Design systems ensure possibilities to make economical pattern markers used for cutting garment pieces, but also to simulate a 3D model of a fashion product for garment fitting to the human figure, decreasing or absolutely avoiding the manufacture of experimental garment samples. The application of the innovative clothing joining technologies, i.e. heat welding and bonding techniques, also ensures decreasing textile consumption. The new challenge for fashion designers–engineers is designing garment models the production of which is without textile waste.

Ecology ideas influence the changes in the attitude of both producers and consumers towards consumption, i.e. different international standards are implemented in clothing industry enterprises, changes in production process management and company culture are initiated, etc.

Nevertheless, consumers today are still faced with the problem – it is difficult to distinguish which product is environmentally friendly and which is not, because there is no single, universally accepted labelling.

Such a system has been developed and presented at the conference *Industry Engineering* by Agnė Staniukaitytė, a graduate of master's study programme *Clothing Fashion Engineering*. She has created a set of clothing labels consisting of 4 circular shape labels of different colours and made of eco-friendly paper with seeds. Each of them gives consumers different information and the chosen label material serves for a new product-related strategy *Prolonged product use*, i.e. the label transforming into a new plant is environmentally friendly.

Since clothing so rapidly becomes unfashionable and 'not wearable', people end up with a lot of unwanted clothing. Today, people throw away enormous amounts of cotton shirts and denim products as trash instead of their

recycling, reusing or remaking. Fashion designers offer reuse of such products creating products with a new design and construction, implementing laser cutting technology.

Two excellent examples could illustrate this way of problem solving. Designer, master of technology sciences Akvilė Sveikataitė has cut loop rows from second-hand denim trousers using laser cutting technology and knitted them into a new designed dress. Master of technology sciences Asta Stankūnienė has produced a collection of accessories woven from second-hand denim fabric strips.

As an alternative to currently dominant fast fashion when clothes are created for masses to be used for a short period of time and then disposed, slow fashion ideas are now spreading changing consumer habits. Slow fashion highlights not quantity, but quality principles. Here are created clothes, distinguished by their individuality and originality of origin, which highlight the personal style of life and creativity. This fashion philosophy includes not only the use but also design development, production and higher well-being. These ideas were also analysed at the conference *Industry Engineering 2015*, held on 14 May 2015 in Santaka Valley, KTU (K. Baršausko str. 59, LT-51423 Kaunas). The paper entitled *Principles of Slow Fashion Application in Clothing Collection Creation* was presented and published by Agnė Andrikytė and Vaida Dobilaitė in the current issue of the Environmental Research, Engineering and Management journal. The topics that were discussed at the Conference covered a wide range of sustainability problems occurring in both global and Lithuanian fashion industry, i.e. industrial design and manufacture of consumables, mechatronics and mechanical engineering, transport engineering, thermo-engineering and many others.

Conference Industry Engineering 2015.
©Kaunas University of Technology