

Organisations promoting Environmental and sustainable production technology in Textile and Fashion / Garment Industries

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The story of man's interaction with the natural environment dates to the dawn of man's emergence as the dominant species on our planet Earth, which very well implies that our existence, survival and growth are dependent on the quality of the environment. Nowadays we are facing unprecedented challenges of globalization and industrialization namely climate change, diminishing resources and biodiversity, increasing waste, contamination of water, energy and deterioration of resources. The environmental issues are reaching crisis point and are rightly, major topical issues. All these issues have been compounded by population growth, magnifying human impact on the planet, and all will have disastrous consequences if they continue to be unchecked. Textile and Garment industry is a major contributor to environmental damage, where textile and fashion designers can be well placed to mitigate the issues through designing and pursuing Sustainable textiles and garments. The sustainable Garment Production design concepts and techniques such as use of materials which are recycled, renewable and can be reused in Production Industries and can help address various environmental issues which plays a marginal but critical role towards averting major ecological crises. The major purpose of the study was to know whether environmental factors were a facilitator for practicing sustainable product designs. The findings of the study revealed that environmental concern was found to be a crucial facilitator for Textile and Garment Industries. This in turn promotes the use of renewable products. renewable energy and recycled material which helps in preserving earth's resources for future generation. The findings would help the community to become more environmentally sensitive which would spark the context and need for sustainable textiles and garments leading towards better health and well-being of the global ecosystem.

Keywords: *Sustainability, fashion, Textiles, Garment Production, Designer, Facilitator, Environmental Concern, organizations.*

Introduction

Recent public awareness of the escalating problems due to diminishing natural resources are helping focus attention on the need to adopt sustainable and healthy lifestyles. Even Wal-Mart, the Sultan of PR hype and hyperbole, has undertaken a major campaign to introduce organic foods and organic clothing along with sustainable business practices. Sustainable clothing and green eco fashion have entered mainstream consumer consciousness with a barrage of recent media attention. But what really is sustainable clothing and is it different from organic clothing?

While concepts of "sustainable clothing" and "organic clothing" share many similarities, they have different roots and history. Where organic clothing grew and evolved out of the organic agriculture movement, sustainable clothing is a product of the environmental movement. They are both working towards the same ends, but one has the feel of the farm and the other has the feel of the lab. One of the most apparent differences between the organic approach and the sustainable approach is the emphasis that the sustainable approach places on reuse and recycling of manufactured products. For example, Milliken & Company's Earth Square Renewal Process allows used carpet tiles to be reused by deconstructing the used carpet tiles and

then reconstructing them in new patterns and new colours. This reduces landfill waste and provides the customer with “new” carpet at about half the price of truly new carpet.

Improving a corporation’s sustainability footprint and reducing environmental impact is about more than just recycling materials. It requires a more holistic corporate approach that includes reusing environmentally friendly packaging, reducing manufacturing and operational waste and pollution, improving building energy efficiency and reducing energy consumption, moving towards the use of renewable energy, improving shipping and transportation efficiencies, and designing sustainability into the products and services that are sold to the public.

Milliken & Company has a very long tradition of environmental good stewardship. In the early 1960’s Milliken formalized one of the first corporate environmental policies for reducing their corporate impact on the environment. Milliken also built one of the first voluntary waste water treatment facilities and implemented large tree planting programs on corporate lands. Milliken has replaced 30% of their natural gas consumption with methane that they capture and “harvest” from the community landfill. Today, due to their tree planting programs resulting in 138,000 acres of trees and environmental manufacturing diligence, Milliken & Company is the only carbon-negative manufacturer in the carpet and textile industry.

Frei Designs-Eco Friendly Fashion Designs

Although sustainable resources have been a trend for some time now, fashion is having its green push right now, and Frei Designs is on the forefront of eco-friendly fashion. Frei Design seamlessly combines skilled artistry with a social conscience creating a product that is both fashionably forward and eco-friendly. Frei Designs is a wholesale apparel business specializing in high-end women's garments with an emphasis on sustainable fabrications and practices. More than just fashion or style, Frei Designs seamlessly blends impeccable design with personal responsibility, creating beautiful clothing with a high attention to fit and detail, all with an emphasis on leaving a smaller footprint on the Earth. Three factors are essential in the production of Frei's garments: style, quality, and sustainability. Frei Designs' garments are produced locally with a tight quality control process that ensures a well-made product from start to finish. Fabrics are purchased from farms and mills associated with ecologically sensitive practices, and dyes used are non-toxic. Also, production facilities used by Frei Designs must pay the employees fair and living wages. On the style end, Frei Designs are created through sophisticated and tailored pattern making, unique hand-drying methods, and one-of-a-kind fabric selections, ensuring that the final products are just as unique as the individuals wearing the garments. Boasting an exceptional sense of wearability, excellent craftsmanship, and an artisan attention to detail, the garments cater to an underserved market for sustainable clothing that retains a signature sense of style.

Conventional Garment Production Techniques:

- Designing and Sampling of the garment.
- Receiving and finalization of the ORDER between buyer and manufacturer.
- Procuring raw materials.
- Washing of fabric (if required)
- Dyeing and Printing
- Pattern making and the grading.
- Cutting of fabric
- Garment assembly
- Sewing Operations
- Embroidery/ patchwork/sequins
- Fixing of pockets, collars, cuffs, lining, inter lining & other accessories.
- Sewing of the garment Finishing of the garment-labelling
- Quality control
- Packaging & forwarding
- Transportation of the finished goods

In all these conventional production techniques no consideration or measures were taken towards water conservation during washing of fabrics, carbon footprints (A carbon footprint is the total amount of greenhouse gasses including carbon dioxide and methane that are generated by our actions).

Sustainable Production Techniques: Emerging Standards

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The global fashion industry needs urgent change toward more sustainability. It contributes to one of the most polluting industries in the world.

Luckily, many organizations and initiatives are working hard to make change happen faster in the textile and apparel industry. It's very encouraging to see renewed interest towards sustainability among conscious consumers, brands, and retailers. They typically assemble key players from the industry to work on the common goal of improving the fashion industry. They offer expert services, advice, information, guidelines, and recommendations on sustainable and long-lasting fashion.

It's time to take massive action to reduce deforestation, pollution, waste, carbon emissions, water, and energy consumption. Fashion companies need to add more environment friendly practices into their daily operations. The apparel and footwear industry employs more than 300 million people around the world, some of them in the poorest countries and under very bad environments and inhuman conditions. Let's encourage more social responsibility to put an end to child labour and modern slavery. Every company should work toward offering better treatment to its supply chain workers and protecting the environment.

There is still so much to be done to transform the global fashion industry, the way we produce and consume clothing today. Everyone has an important role to play.

Even if it takes a lot of work and persistence, we must take part in this change to create a more effective and long-lasting approach for the apparel industry.

Here are the top organizations, websites, summits, coalitions, initiatives, and research programs working on ethical and sustainable fashion.

Centre for Sustainable Fashion

Centre for Sustainable Fashion (CSF) is a research centre based at the London College of Fashion of the University of the Arts London (UAL). It's committed to using fashion to drive change, build a sustainable future, and improve the way we live since 2008. It supports key change-makers in the fashion industry with sustainable design and business practices.

The CSF brings together a diverse community of world-leading researchers, designers, educators, and communicators with an extensive network across many disciplines and locations.

Ellen MacArthur Foundation

The Ellen MacArthur Foundation works to inspire a generation to re-think, re-design, and build a positive future circular economy. Together with businesses, governments, and academia, the organization builds a framework for a restorative and regenerative economy.

Its core mission is to accelerate the transition to a circular economy, based on design principles lowering waste and pollution, keeping products and materials in use, and regenerating natural systems.

Fashion for Good

Fashion For Good is an industry-funded platform for sustainable fashion innovation. Its mission is to bring together the entire ecosystem to make fashion a force for good. It aims to transform the fashion industry from the linear 'take-make-waste' model to a circular Good Fashion approach that is restorative and regenerative by design. The organization focuses on sparking and scaling technologies and business models that have the greatest potential to transform the industry through an Accelerator, Scaling program, and good fashion fund. "The Five Goods represent an aspirational framework we can all use to work towards a world in which we do not simply take, make, waste, but rather take, make, renew, restore." - William McDonough, Fashion for Good co-founder

Fashion Revolution

Fashion Revolution is a non-profit global movement represented by The Fashion Revolution Foundation and Fashion Revolution CIC with teams in over 100 countries around the world. The organization assembles fashion brands, retailers, designers, workers, consumers, academics, writers, leaders, policy, and change-makers from all around the world. It focuses on using voices to transform the entire system with systemic and structural change, to make the fashion industry protect the environment and value people over profit. Fashion Revolution Week takes place in April each year, on the anniversary of the Rana Plaza factory collapse, which killed 1,138 people and injured thousands more in 2013. Millions of people are invited to come together to campaign for change.

Good On You

Good On You is a mobile app and website that offers thousands of brand ratings, articles, and expertise on ethical and sustainable fashion to learn more about the impact of fashion brands on people, animals, and the planet.

The ethical brand rating system provides conscious consumers with buying advice and shopping suggestions to make better choices when purchasing fashion items.

Good On You look at certifications, standard systems, and ratings to rank more than 2,000 fashion brands. It also considers brands' public statements that meet certain conditions for reliability and usefulness.

"Good On You is my benchmark for sustainable fashion. This means that when I'm given a platform to speak about my choice of outfit, I will have a meaningful story to tell. And it's powerful. But I am just one person. In truth, we can all play a part in driving fashion to be more sustainable and ethical. By choosing to wear clothes from labels that embrace transparent, creative, and innovative production methods; and by re-wearing, recycling, swapping, and drifting." - Emma Watson, English actress, model, and sustainable fashion advocate

Global Fashion Agenda

Global Fashion Agenda (GFA) is a leadership forum assembling fashion industry leaders and influencers for collaboration on sustainability. It's an advocacy, non-profit, thought leadership organization focusing on mobilizing and guiding the fashion industry to take bold and urgent action on sustainability. The organization is behind the Copenhagen Fashion Summit since 2009, a leading business event on sustainability in fashion, which gathers key players in the fashion industry, multilateral organizations, associations, and political decision-makers to find common solutions to implement social and environmental sustainability.

Slow Factory Foundation

Slow Factory Foundation is a non-profit public service organization dedicated to improving sustainability literacy in fashion since 2013. It operates education, design, community initiatives, and other opportunities for corporations to develop deeper transparency and innovation strategies for better environmental and social impact. The Foundation uses a holistic, human-centred approach to bridge science, human rights, technology,

and culture with fashion. It partners with global brands, non-profits, and academia to build community and growing global movements through education. It's behind the cross-cultural, interdisciplinary global conferences Study Hall that educate around sustainability literacy in fashion, as a medium for social and environmental change.

Sustainable Apparel Coalition

The Sustainable Apparel Coalition (SAC) is an apparel, footwear, and textile industry's leading alliance for sustainable production. The SAC's vision is of an industry that produces no unnecessary environmental harm and has a positive impact on the people and communities associated with its activities. The Coalition develops the Higgs Index, a standardized value chain measurement suite of tools for all industry participants. It enables brands, retailers, and facilities of all sizes to assess their environmental impacts. Its goal is to empower fashion companies to make meaningful improvements that defend the welfare of garment factory workers, local communities, and the environment.

Textile Exchange

Textile Exchange a global non-profit organization that drives industry transformation in preferred fibres, integrity, standards, and responsible supply networks since 2002. It provides tons of useful resources and information about better textiles aiming to inspire and equip people to accelerate sustainable practices in the textile value chain.

United Nations Alliance for Sustainable Fashion

The UN Alliance for Sustainable Fashion is an initiative of United Nations agencies and allied organizations. It aims to contribute to the Sustainable Development Goals through coordinated action in the fashion sector. The Alliance supports collaboration, knowledge sharing, outreach, and advocacy through the development of joint activities, including events, research, and guidelines.

Education for sustainable development

Education for sustainable development (ESD) is UNESCO's education sector response to the urgent and dramatic challenges the planet faces. The collective activities of human beings have altered the earth's ecosystems so that our very survival seems in danger because of changes more difficult to reverse every day. To contain global warming before it reaches catastrophic levels means addressing environmental, social and economic issues in a holistic way. UNESCO's ESD for 2030 education programme aims to bring about the personal and societal transformation that is necessary to change course.

Acting as a global advocate and aiming to strengthen capacities of governments to provide quality Climate Change Education (CCE), UNESCO produces and shares knowledge, provides policy guidance and technical support to its Member States and implements projects on the ground. UNESCO encourages innovative approaches and enhances non-formal education programmes through media, networking and partnerships.

Global Organic Textile Standards

GOTS is a tool for an international understanding of environmentally friendly production systems and social accountability in the textile sector. It covers the production, processing, manufacturing, packaging, labelling, Export, Import and distribution of all natural fibres. That means, for example: use of certified organic fibres, prohibition of all GMOs and their derivatives and prohibition of a long list of synthetic chemicals. During production Formaldehyde and aromatic solvents are prohibited, dyestuffs must meet strict requirements (ie: threshold limits for heavy metals, no AZO colorants or aromatic amines) and PVC cannot be used for packaging. A fabric that is produced to the GOTS standards is more than just the fabric. It's a promise to keep our air and water pure and our soils renewed; it's a fabric, which will not cause harm to you or your descendants. An organic fibre fabric processed to GOTS standards is the most responsible choice possible in terms of stewardship of the earth, preserving health, limiting toxicity in the load to humans and animals.

The MTS Unified Sustainable Textile Standard

It examines garment sustainability in five areas of sustainability:

1. Safe for Public Health & Environment,
2. Renewable Energy & Energy Efficiency,
3. Material, Biobased or Recycled,
4. Facility or Company Based,
5. Reclamation, Sustainable Reuse & End of Life Management.

To achieve each of these five areas of sustainability, the sustainable impact of the garment is monitored across twelve categories:

1. Intake, Solid and Hazardous Waste
2. Global Warming.
3. Acidification
4. Ozone Depletion,
5. Eutrophication,
6. Photochemical Smog
7. Human Health,
8. Ecological Toxicity,
9. Fossil Habitat Alteration
10. Habitat Alteration
11. Criteria Air Pollutants
12. Fuel Depletion,

The level of sustainability that a textile product achieves is determined by an elaborate point system that allocates points based upon degree of achievement for the different categories within the different areas of sustainability. Textile manufacturers and suppliers conduct their own testing and supply MTS with the testing and certification results.

McDonough Braungart Design Chemistry (MBDC) and Green Blue

These are two other organizations on a mission to introduce sustainable design, manufacturing and business practices MBDC is a process and design consulting company dedicated to helping manufacturing companies incorporate environmental awareness and sustainability into all aspects of their product designs and manufacturing processes, Green Blue, originally a part of MBDC and then spun-off as a separate non-profit organization, has developed a comprehensive Sustainable Textile Standard based upon the "cradle-to-cradle" approach developed at MBDC. According to Green Blue, conventional industrial design has been based upon the "cradle-to-grave" approach. A company harvests raw materials, combines them in the manufacturing process giving birth to a new product, sends it out into the world where it does its job, and the product eventually becomes old and used up and is then thrown into the rubbish heap where it is buried in one of the tons of thousands of landfills affecting the land near all cities and towns.

Norm Thompson

The casual clothing company with the tagline "Escape from the Ordinary", has developed a Sustainability Toolkit and Scorecard designed to evaluate and rank a wide variety of products mostly related to garment and textiles and their production and manufacturing environmental impacts. The Norm Thompson Sustainability Toolkit helps producers, manufacturers and consumers understand how different growing, production, manufacturing, shipping and transportation decisions affect a product's sustainability ranking and environmental impact. Curiously enough, they do not directly define sustainability but rely upon the reader to infer their definition from their evaluation criteria and content. After searching through the hundreds of

garments on the Norm Thompson, only 10 garments that could be considered sustainable or organic clothing and 6 of those were varying styles of organic cotton bras. For a clothing company concerned about sustainability, synthetic fibres outnumber natural fibre garments and most of the natural fibre clothing is made from conventional, pesticide grown and chemically finished manufactured cotton. Many schools, universities and institutes have created courses and curriculums for sustainability as part of their design and environmental studies programs.

Measures to be taken by the garment manufacturers to make productio techniques more sustainable.

Environmentally friendly practices are not generally synonymous with the latest fashion. Many schools, universities and institutes have created courses and curriculums for sustainability as part of their design and environmental studies programs the consortium represents every aspect of the production process, from design to yarn-spinning, textiles to garment production. Garment manufacturing has a "definite impact" on the environment at every level of production, from the amount of energy it uses to the mounds of scrap fabric that end up going to waste. One garment house alone, he noted, uses more than 91 million meters of fabric. About 18 million meters-enough to cover 6,000 football pitches-end up as waste.

One of the first initiatives is to recycle scrap fabric by turning it into 30 per cent recycled fabric. Another is converting factories into more energy-efficient plants. It is feasible to cut energy use by 20 per cent with current technology available. That means a medium-sized factory, which on average uses 35 million kilowatt hours of energy annually, can save seven million kilowatt hours per year, that's enough to power 1,750 households, SFBC is also devising a carbon accounting standard in concert with WWF Hong Kong This would allow manufacturers to add labels to clothing, informing consumers about the carbon footprint that went into producing the garment. To share information and devise new ways to make the trade more environmentally friendly. Manufacturers should be committed to make all aspects of the production process socially and environmentally sustainable over time.

The use of water in a 'Dry World'

In consideration of environmental and social impact, the use of water in growing and processing cotton is of major concern. Conventional cotton requires on average 3000 cubic litres more water per acre than organic cotton to grow due to the repeated application of pesticides, herbicides and chemical fertilizers. Careful use of water through the utilization of efficient irrigation schemes and, where possible, rain fed crops helps to make organic cotton a sustainable agriculture. Sustainable textile production relies on minimizing social and environmental exposure to harmful chemicals so that only a very limited and highly regulated number of chemicals (such as caustic soda) are used. Thus, water usage is minimized with correct procedures for recycling/cleaning wastewater. Farm and factory workers are not exposed to hazardous chemicals, and local communities do not end up with a sick environment and ill population. **"Sustainable clothing products mean fair trade for a fair world."**

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