

Sustainability in the readymade garments industry

Amany Mostafa Aabed Hassanin

Lecturer at the High Institute of Applied Arts, 6th of October-Fashion department

Abstract:

The research Discusses the concept of sustainability in the readymade garment industry, and how the sustainability can be achieved in this sector and how to produce eco-friendly products.

Research problems can be summarized in 3 questions; what are the concepts of sustainability in the readymade garment industry? how to produce eco-friendly products? And how the sustainability can be achieved in this sector?

The study provides a tool for, preserving the environment and using environment eco materials during the manufacture of clothing, shed light on one of the successful experiences in the sustainability of clothing in Egypt, Research Objectives has been to spread the culture of sustainable clothing use as a global trend in the fashion industry, The right of future generations in an environment free from pollutants, Research Methodology The experimental approach includes description and analysis, The limits of the research were limited to the study of the case of one of the successful experiences in the field of sustainable clothing, (nature- tex) company follow the group (SEKEM). The study uses a description and analysis.

Keywords:

Sustainability
readymade garments
Bamboo Clothing

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1- Introduction

The concept of a sustainable society has been around for decades. In 1981, Lester Brown, founder of the World watch Institute, defined it as “one that is able to satisfy its needs without diminishing the chance of future generations.”

Over the years, this concept has evolved to encompass a broad range of social and environmental issues. Many activists picture a sustainable society as a Venn diagram of three overlapping concerns:

- a. Environment
- b. Social
- c. Economic

In a sustainable world, each dimension works in harmony with the other. Today’s citizens are given every opportunity to grow and thrive; tomorrow’s resources are preserved and protected

<http://www.sustainabilitydegrees.com>

Sustainable design (also called environmental design, environmentally sustainable design, environmentally conscious design, etc.) is the philosophy of designing physical objects, the built environment, and services to comply with the principles of social, economic, and ecological sustainability.

The Sustainability Flower Tool is the implementation of the principles and indicators into management and communication is the responsibility of the implementing organizations. As a pragmatic and scalable approach the Sustainability Flower tool and an evaluation

guideline has been developed and adapted for various scenarios by the Soil & More Foundation. The evaluation of the dimensions is emphasized by a traffic light rating system. The implementing organizations are free to use their own design for communication purposes or use the generic (more technical) one as provided by the Soil & More Foundation.

Manufacturing environment friendly products in a sustainable way is the most important and emerging issue at the present phase of industrialization. The main focus comprises not only to the products quality sustainability but also it focuses on the manufacture processes including raw material resources from cradle to grave. Nowadays many companies and organizations focus on the environment friendly way of production. Sustainability of the garments industry is also a burning issue, needed to adopt cleaner and improved technology and management for better environment.

<https://www.businessoffashion.com>

The garment industry has become the backbone of the economy of the most countries. It is essential to promote sustainability in this large industrial sector. When the world garment market and companies are focusing on environment friendly products It is high time to adopt special strategies and an approach towards sustainability. This research work emphasis to make the life cycle approach of manufactured products for environmental indicators to achieve sustainability

<https://www.diva-portal.org/smash/>

The research problem is: what is the concept of sustainability in the readymade garment industry, how the sustainability can be achieved in this sector and how to produce eco-friendly products? Research importance, preserving the environment and using environment eco materials during the manufacture of clothing, shed light on one of the successful experiences in the sustainability of clothing in Egypt, Research Objectives Spread the culture of sustainable clothing use as a global trend in the fashion industry, The right of future generations in an environment free from pollutants, Research Methodology The experimental approach includes description and analysis, The limits of the research were limited to the study of the case of one of the successful experiences in the field of sustainable clothing, (nature- tex) company follow the group (SEKEM).

2- Statement of the Problem

- 1- What is the concept of sustainability in the

readymade garment industry?

- 2- How to produce eco-friendly products?
- 3- How the sustainability can be achieved in this sector?

3- Objectives:

- 1- Spread the culture of sustainable clothing use as a global trend in the fashion industry.
- 2- The right of future generations in an environment free from pollutants.

4- Assumptions

- 1- Preserving the environment and using environment eco materials during the manufacture of clothing.
- 2- Shed light on one of the successful experiences in the sustainability of clothing in Egypt.
- 3- To promote sustainability in the garment sector.

5- Methodology:-

description and analysis.

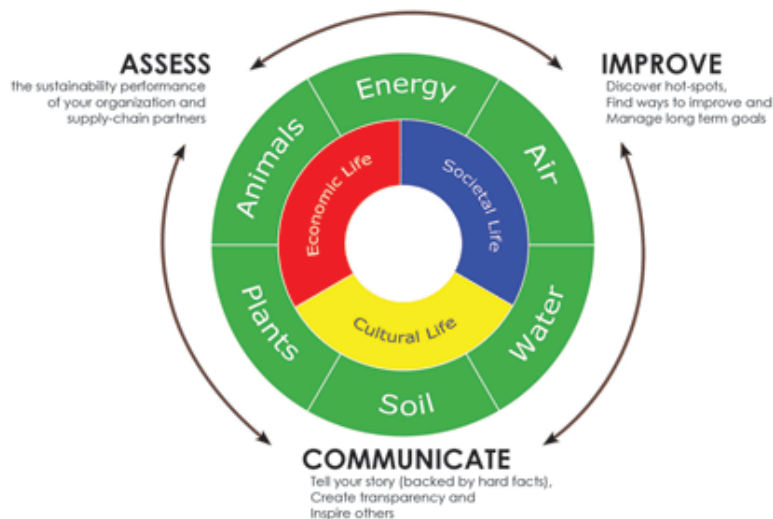


Figure (1) Sustainable flower -

Bamboo fibers & sustainable:

Bamboo is a highly sustainable plant and is becoming an increasingly popular alternative to cotton, not only because of its amazing properties which are kind to you, but because its cultivation is kind to the environment.

Bamboo is the fastest growing plant in the world, so yields more often from the same plot, Bamboo

thrives naturally without using any pesticides or fertilizers, Bamboo fabric is 100% biodegradable, Bamboo only needs rain water to grow. Very little, if any, additional water is ever required, As a grass, bamboo is cut not uprooted, so is good for soil – particularly as it can grow on slopes not viable for other crops.

<https://bambooclothing.co.uk>



Figure (2) Bamboo plant(a) and fiber (b)

Bamboo seemed like a miracle fiber – and in a sense, it is. It's turning it into *fabric* that's the more complicated issue.

Bamboo fabric can be made in one of two ways – chemically or mechanically. The chemical process has been met with much resistance from sustainable fashion experts because this process requires toxic chemicals. These chemicals, sodium hydroxide and carbon disulfide, change the genetic



A Canadian brand, Miik made from bamboo – Figure (3)

Organic Cotton:

As the name implies, organic cotton is grown without chemical pesticides and fertilizers. Textiles made of organic cotton require less water to manufacture than conventional cotton textiles and are often more comfortable.

For the consumer, the advantages are obvious, says Schwab. “It is softer [and] it feels better on the skin. The skin is your largest organ, so you are not absorbing the chemicals.”

Organic cotton requires specialized equipment that allows the cotton to be harvested easily without conventional methods. Some fair trade cooperatives don't advertise organic cotton, but still strive for a sustainable, humanely produced product. Still, the use of third-party certification, such as used by Mata Traders, that supports worker cooperatives and non-toxic dyes have their own sustainability value.

The H&M Group is one of the leading users of organic cotton in the world

The H&M Group is an active member of the Better Cotton Initiative, BCI. BCI is a non-profit organization, helping farmers to grow cotton reducing stress on the local environment and improves the livelihoods and welfare of farming communities. In 2015, BCI achieved its goal of training 1 million farmers in harvesting cotton with less water and chemicals, in collaboration with partners such as WWF and Solidaridad. The next BCI goal is to train 5

million farmers and produce 30% of global cotton production by 2020.

Some marketers will rely on the fact that we immediately think it's good because it comes from a *plant* that carries many good properties. They stick a panda bear or bamboo shoots on the label, and that seems to be enough to convince everyone of its sustainability



<http://ecosalon.com/bamboo-eco-friendly-or-greenwash/>

million farmers and produce 30% of global cotton production by 2020.

<http://about.hm.com/en/sustainability/>

Silk:-

Is produced by moths, and conventional methods destroy the moth and cocoon in the process. Sustainable products, such as Ahimsa silk, use methods that don't kill the moth pupa. Eco-friendly silk is produced primarily in India, North Asia and Africa.

Like organic cotton, “green” silk is often softer because it lacks the harsh dyes that are common in conventional silk production. There are a variety of types of sustainable silk, each with their own unique colors and characteristics. The most common is produced by a creamy white-colored silk worm that is found on the mulberry tree in India. The Ethical Silk Company, based out of Ireland, specializes in products made from this delicate weave.

Tussur silk, also from India and Mopani silk, from Africa, are darker, rich-colored silks.

<http://www.cool-organic-clothing.com/organic-silk.html>

Hemp

Popular lore places this versatile plant in the category of marijuana. While it is technically a member of the cannabis family, its textile use is less controversial (and a lot less psychoactive). Its true benefits can be found in its durability and ruggedness, although as a fabric, hemp is

surprisingly comfortable to wear. It also blends nicely with other lighter materials like cotton and silk. It is a fast-growing plant that is easily managed, can be grown organically and used for everything from clothing and nutritious food to paper and building materials.

Few textile companies use hemp right now, but that is likely to change with the passage of the latest Farm Bill, which contained a provision to legalize hemp farming. Nine states have already passed laws supporting its cultivation.

<http://www.huffingtonpost.com>

Wool

The versatility and popularity of wool dates back thousands of years and can be found wherever sheep have been cultivated. It's been used as a source for clothing in both cold and warm climates, although it gains its fame in part from its insulating properties in chilly, windy environment of the British Isles. Because of its natural ability to wick away moisture, it's a favorite fabric during the winter. It is also used for summer throws and light blankets.

Sustainable wool is harvested from sheep that are raised in humane conditions. Research shows that adequate living conditions and reduced stress results in less disease and a better agricultural product. Organically raised sheep have been shown to have better immune systems that can withstand the parasites and diseases that commonly plague conventionally raised animals.

Wool is naturally hypoallergenic, and many people who have allergy sensitivities find that organic wool, which is void of chemical dyes, soaps and residues, are a comfortable fabric for year-round apparel.

<http://sustainabilityinstyle.com/fabric-profile-merino-wool/>

Natural dyes and sustainability:-

Natural dyes are dyes primarily obtained from sources found in nature. that a great source for natural dyes can be found right in your own backyard It's not surprising—roots, nuts and flowers are just a few common ways to get many colors like yellow, orange, blue, red, green, brown and grey.



Figure (4) Eco dyes

But away from the do-it-yourself talk, history shows that natural coloring has been serious business for thousands of years. Old manuscripts reveal that around 3.000 BC, people in China and India used plant-based materials to dye their clothing. Explorer Vasco da Gama consolidated this knowledge through the maritime route, which commercialized natural dyes like saffron and indigo. At the same time, in 1500 AD, Spanish conquistadores found textile products in the Americas that had been colored with the red extract of the cochonilla. With the invention of the first synthetic color dye in 1856, natural coloring became less popular until the 1990's, when several countries prohibited the use of chemical dyes and environmental concerns aroused renewed interest in natural coloring.

Low-impact, fiber-reactive dyes have become the dye of choice for many organic clothing manufacturers who want a diverse palette of vibrant colors. Undyed and color-grown fabrics are the best choice for people who react to fiber-reactive dyes or who want only pure fabrics on their skin. And although natural colored cotton grows in beautiful shades of beige, chocolate and mauve, hot pinks and sunshine yellows are far from available as yet.

Our advice for the color fetishist, then, is to mix and match with colored second hand pieces, items from before-you-greened-your-closet or to take up natural dyeing as a hobby

<https://www.theguardian.com/sustainable-business>

Zero-waste design:-

“Zero-waste design isn't a new technology or material. Instead, it's a new way of thinking — a philosophy that forces you to challenge existing techniques and become a smarter designer. Technique-wise, it involves fitting all the flat pieces of your clothing pattern like a jigsaw puzzle so no fabric is wasted. Considering that roughly 15 percent of the fabric is discarded when a typical garment is made, the cumulative effect of leaving behind no waste has far-reaching environmental consequences. More than that, however, zero waste about working within those constraints to invent beautiful new forms of fashion.”

<https://wakeup-world.com/2017/03/02/zero-wastefriendly-fashion/>

Eco fashion show:-

Gotham Hall two dozen internationally recognized designers displayed their latest creations to a waiting high-powered audience at the Earth Pledge eco-fashion show Future Fashion, before the official opening of New York Fashion Week.

With fabric sponsored by Enviro Textiles, designers like Donatella Versace, Behnaz

Sarafour, Ralph Lauren, Donna Karan, Isabel Toledo, and Calvin Klein wove their magic with

everything from Hemp/Organic Cotton Jersey Knits to Hemp Silk / Charmeuse.



Ralph Lauren



Donna Karan



Yves Saint Laurent

Figure (5) eco-fashion show

Environmental Textiles Standards and Certifications strictly:



EnviroTextiles Standards and Certifications strictly follow the transparency and requirements provided by SBP®, Sustainable Biodegradable Products™

The SBP® label is a product development transparency guideline developed by the SBP® Project Team at Enviro Textiles LLC. The SBP®

label informs the consumer about each step that takes place when a product is made, from the raw materials used to the labor conditions involved. By revealing this information, we are able to show how ecologically beneficial a product truly is and how socially responsible the processes are in the development of the product.

SBP® includes the following accredited certifications:



Figure (6) accredited certifications

Introduction to sekem:

In 1977, Dr. Ibrahim Abouleish started the SEKEM Initiative on an untouched part of the Egyptian desert (70 hectares) 60 km northeast of Cairo. Using Biodynamic agricultural methods, desert land was revitalized and a striving agricultural business developed. Over the years, SEKEM became the umbrella of a multifaceted agro-industrial group of companies and NGOs, including different educational institutions or a Medical Center. Today, SEKEM is regarded as a leading social business worldwide.

The SEKEM Code of Conduct (CoC) summarizes the framework of values guiding the operations of SEKEM. Based on the SEKEM vision for sustainable development, the principles of the UN Global Compact and the relevant UN and ILO conventions, it formulates explicit commitments regarding legal compliance, business ethics, anti-corruption, labor standards, human rights and environmental responsibility. Our Code of Conduct applies to SEKEM operations and all

<https://envirotexile.com/standards-and-certifications/>

associated business partners and is subject to regular review and development.

Compliance with the Code of Conduct is monitored and enforced by the compliance and internal auditing managers of SEKEM. These departments also provide guidance and information on the application of the code, and serve as internal and external contact points for concerns about noncompliance, which can be raised anonymously at wish. The SEKEM CoC is publicly available at the SEKEM website, provided in English and Arabic to all SEKEM employees in the SEKEM Information System (SIS), and openly displayed on all working premises.

Figure (7) Sekem farm

Sustainable development towards a future where every human being can unfold his or her individual potential; where mankind is living together in social forms reflecting human dignity; and where all economic activity is conducted in accordance with ecological and ethical principles

Sustainable Development in SEKEM Life

SEKEM was founded with the idea of sustainable development and building of a prosperous future for the surrounding communities and Egypt. The vision that brought Dr. Ibrahim Abouleish to dig the first well in the vast desert land still resounds in SEKEM's approach of conducting business. Like a compass, the vision, mission and values guide the employees in the everyday work in all SEKEM companies.

<http://www.sekem.com/en/societal-life/coc/>

Nature Tex – Organic Textiles From Egypt to the World

Nature Tex is a high quality producer of colorful baby and kids wear, dolls and toys, home textiles, fabrics and assorted adults items using only organic cotton. NatureTex was founded in 1998, originally under the name of ConyTex. The design and development of the products is done in-house in its own studio, and produced and marketed under its own brand "Cotton People Organic" (CPO), "NatureTex", "Organic Baby", or under private labels such as "People Wear Organic" (PWO) or "Under The Nile". NatureTex competes successfully in the global market for organically produced textiles through the design, manufacturing, and marketing of beautiful and high quality products from Egypt, the home of today's premium cotton production

Nature Tex is an Organic textile company and belongs to the SEKEM Group of Companies.

Nature Tex was established in 1994 under the name Cony tex to produce Organic textiles using the high quality long and extra long staple Organic cotton. Nature Tex's products are certified according to GOTS (Global Organic Textile Standard). Further certifications are to be found below.

The Nature Tex factory is located on the SEKEM Farm.

The company manufactures various products out of 100% Organic cotton or linen, including underwear and sleepwear for babies and children, casual cloths for adults, accessories, dolls and toys (may also be stuffed with Organic wool), and home textiles, mainly bedding and spa items.

A linen bedding line (100% linen, or a blend of linen/cotton) is available. Beside the ready-made garments and toys, NatureTex also offers fabrics as well as yarn for knitting and weaving, and cotton carpets made from scabs.

Almost 100% of the raw materials are produced locally which ensures a short and tight delivery chain. Only a few items, mainly accessories such as snaps or special packaging items are imported.

Nature Tex produces garments in various manufacturing processes: design and development based on customer requirements or developed in house, cutting, sewing, pressing/ironing and packing. Screen printing is done in the Nature Tex print house, which can also be used for small quantity of all-over prints or labels.

Nature Tex certificate:-

Under the Nile's Transparency and Certifications



Nature Tex certification – Figure (8)

Under the Nile certification:

Its known for a premium quality, organic Egyptian cotton layette Essentials. It is the exclusively authorized importers of organic Egyptian cotton baby clothing in the United States.

With fresh colors and adorable prints, the clothing can be mixed and matched for easy style. toys are unique, imaginative and organic, inside and out. We're committed to providing the highest quality organic cotton baby products in a sustainable and

socially responsible manner.

Our cotton is grown on a biodynamic farm without the use of pesticides or insecticides. We do not use any chemical finishes on our fabrics, only natural starches. We whiten our fabric using an oxygen-based whitening process. Our dyes are made with metal-free colors, containing no harmful chemicals such as AZO agents. This translates into softer, cleaner clothing that is more gentle on babies' skin than conventional cotton. Under the Nile's clothing is made in Egypt at a Certified Fair

Trade Facility.

Under the Nile was the first baby clothing company in the USA to be certified by The Global Organic Textile Standard. We're the only baby clothing company in the world to carry the official Gold Seal of Authentic Egyptian Cotton. Every purchase you make contributes to a better world for people, the planet, and most importantly - your baby.

The Global Organic Textile Standard (GOTS) ensures sustainable and ethical manufacturing in all stages of production. This holds our company

accountable to strict ecological and social criteria, including things like cotton cultivation, safe fabric finishes, sustainable packaging and fair treatment of workers. Everything about our products - from cotton harvest to product hangtag - adheres to the GOTS standard of ethical and sustainable production. The factory where our products are made are inspected annually to maintain the GOTS certification. Under the Nile was the first baby clothing company in the USA to be GOTS certified



Nature tex

Figure (9) products

Embroideries as well as applications and many other extras are available.

Nature Tex subcontracts spinning mills, knitting mills, yarn dyeing mills, fabric dyeing and printing facilities to process cotton fiber into fabrics ready to be cut and sewn. Between each step, quality control is applied in order to pass the product for further processing. The entire process chain is certified according to the NOP (cotton fiber/farms) and GOTS Standard.

About 95% of the total turnover of Nature Tex is

export sales. Nature Tex 's clients are mainly situated in Europe and the United States (55-60%), and in some other countries.

Quality

Nature Tex has achieved European standards of quality control and is managed according to the quality systems of "ISO 9001", "ISO 14001" and "OHSAS18001" for a safe working environment. All production also runs under the "Demeter" standards for Biodynamic textiles.



Figure (10) Nature tex factory

In 2001 a total quality management or "TQM" was established. The company was certified for manufacturing and selling Fair trade textiles by the Fair trade Labeling Organization (FLO, Max

Havelaar) in Bonn in 2007. CO2 neutral products are available.

Quality staff regularly is receiving training courses from both, local and foreign experts. The company

has been certified by GOTS (Global Organic Textile Standard) since 2008.

The short production chain and the processing according to the Global Organic Textile Standard help to keep the ecological impact of our products very low. We are able to measure the CO2

footprint and neutralize it using CO2 emission reduction certificates.

The company has 240 employees, beside approx. 60 women working from their homes. Social aspects are of highest priority and exceed the requirements of all regular certifications.



Figure (11) Natural dyes in Nature Tex



Figure (12) Recycling rugs in Nature tex

6- Conclusions

The emergence of the improvement of the garment industrial sectors to approach sustainability is essential. As it is the backbone of the economy, it needs to have high initiatives for future stability and sustainability. Many foreign buyers are concerning about the environment issues and demand more environment friendly products. Some of the garment brands already started to have standard environment labelling in their products as well as their website. These companies want to concern its consumers by introducing LCA, water foot prints and global warming potentials related to their products Egypt garment industries should adopt these environmental measures and provide the wanted information in the export contract signed with the buyer company. It will advance the product manufacturing process with better environment and promote a sustainable way

7- Recommendations

1-Further studies of the expansion of organic

agriculture.

- 2- To make mandatory initiatives for all textile dyeing industries to adopt cleaner and efficient production
- 3- To choose the appropriate treatment technology for the effluent according to the pollutant properties
- 4- The government must Prepare a concrete Garment policy for sustainability
- 5- The penalties imposed on garment factories that do not comply with the conditions of preserving the environment
- 6- Focus on successful experiences in sustainable readymade garments

8- References:

- 1- <https://www.businessoffashion.com>
- 2- <https://www.diva-portal.org/smash>
- 3- https://en.wikipedia.org/wiki/Sustainable_design
- 4- <http://www.sustainabilitydegrees.com>
- 5- <https://envirotextile.com/>

- 6- <http://about.hm.com/en/sustainability>
- 7- <https://envirotexile.com/standards-and-certifications>
- 8- www.theguardian.com/sustainable-business
- 9- <http://www.sekem.com/en/societal-life/coc/>
- 10- <https://wakeup-world.com/>
- 11- <https://bambooclothing.co.uk/why-is-bamboo-better/>
- 12- <http://www.cool-organic-clothing.com/organic-silk.html>
- 13- http://www.huffingtonpost.com/2014/05/03/hemp-sustainable-crop_n_5243351.html
- 14- <http://sustainabilityinstyle.com/fabric-profile-merino-wool/>
- 15- <https://organiccottonplus.com/pages/learnin-g-cente>