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PREFERENCE OF THE ECO-FRIENDLY FABRIC FROM ORGANIC COTTON AND BAMBOO-A STUDY

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Abstract - The Eco-friendly Fabric process system helps designers determine the best way to minimize environmental damage and maximize efficiency during the entire life of a product. An Eco-friendly Fabric product goes through at least five different stages in its life; raw material production, finished product production, packaging, use, disposal, or recycling & refurbishment where it again begins the cycle. When designers are in the first stages of designing a product they analyze each stage in the product's life cycle to determine a plan to make each stage as efficient as possible, just like using the Eco-friendly Fabric.

Key words: Eco-friendly Fabric (EFF), Design for Environment (DFE), Cotton, Bamboo.

I. INTRODUCTION

When it comes to eco-friendly fabrics, at first, let's learn a concept "Design for Environment (DFE)". DFE is a general concept that refers to a variety of design approaches that attempt to reduce the overall environmental impact of a product, process or service, where environmental impacts are considered across its life cycle. In **Eco Friendly Fabric (EFF)** the raw material, processing and manufacturing are done using materials and processes which are not dangerous to the environment or the employees working on said processes. The Eco-friendly Fabric process includes the minimization of waste and hazardous by-products, air pollution and energy expenditure, among others. Also these processes can help reduce the amount of energy needed for the entire production operation. The manufacturing process must also be a non-toxic process with minimal emissions that creates the least amount possible of left over material.

In the packaging of the Eco Friendly Fabric (EFF) the materials used are environmentally friendly, which can be achieved through the reuse of shipping

products, elimination of unnecessary paper and packaging products, efficient use of materials and space, use of recycling and/or recyclable materials.

Organic and eco textiles cover a wide range of natural and recycled fibers. Certified Organic textiles are grown in controlled settings with no pesticides, herbicides or synthetic fertilizers and are certified by an international governing body such as Control Union, IMO (Institute for Market ecology) or One-Cert. **The term "eco textiles" refers to a select group of textiles that have a reduced carbon, energy and pollution impact when compared to the standard methods used to produce textiles and manufacture clothing.** Generally, eco friendly fabrics are produced from crops that do not require pesticides or chemicals to be grown, use less water and energy to be produced and processed and create less waste during production, processing and at the end of their useful lives. Sustainable textiles can also refer to manmade fabrics produced from renewable sources such as bamboo or wood. There are myriad eco friendly fabrics whose benefits go beyond their positive social and environmental footprint. In many cases the fabrics we will discuss are softer, more durable, hypo-allergenic, stronger, UV resistant and more moisture absorbent than conventional cotton. Check out our environmentally friendly fabrics resource library and find out which eco alternative is best for you.

Facts in Eco- Textiles: Cotton and Bamboo

- Growing cotton uses 22.5 percent of all the insecticides used globally.
- Growing enough cotton for one t-shirt requires 257 gallons of water.
- The bleaching and then dyeing the resulting fabric creates toxins that flow into our ecosystem.
- The use of bamboo for clothing is contributing to the rapid depletion of the world's forests.



- Petroleum-based products are detrimental to the environment on many levels.
- Conventional cotton represents 10% of world agriculture and uses 25% of the world's pesticides (OTA).
- It takes 1/3 of a pound of chemicals to make one conventional cotton t-shirt.
- 7 of the top 15 chemicals used in conventionally grown cotton are classified as known or suspected carcinogens by the Environmental Protection Agency (EPA).

Methodology: The study was conducted on randomly selected responded from Jaipur .The data was collected through personal interview schedule method and analysis done using by percentage.

II. RESULTS AND DISCUSSION

Preference of Eco-Friendly Textile by Consumers:

To analyze the preference of Eco-Friendly textile two types of selected consumers were divided in two groups, group one was of textile knowledge consumer group and another group consisted the general consumers with least knowledge of textile. The responses from both the groups were selected by random sampling method and 50 respondents were selected from Jaipur (Rajasthan).

Table No. 1: Preference of Eco Friendly Textile by Consumers

S. No	Respondents	Preference of Eco Friendly Textile					
		Yes	Percentage	No	Percentage	Known	Percentage
1	Textile Known	43	86	07	14	50	100
2	General	24	48	04	8	28	56

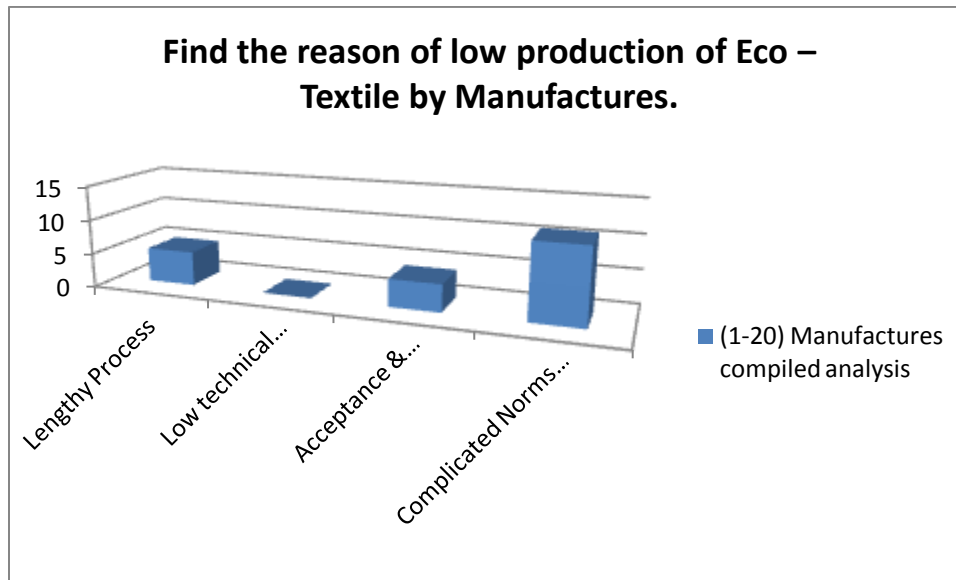
From the data analysis of table no.1 it is clear that 86 percent of textile known consumers preferred the eco friendly textile as compared to 48 percent of general consumers. It is also evident from the table no. 1 that 100 percent textiles known consumers were aware about the eco friendly fabric but from the general consumers only 56 percent were aware about the eco friendly fabric. After further study of table no 1. It is concluded that there is a need to spread the awareness about the eco friendly textile in the market regarding its benefits for medical point of view, its

environmental friendly process and reduction of use of chemicals from its production to processing.

Study of the find reason of low production of Eco – Textile by Manufactures:-

Interview based survey was used to find the reason of low productivity of Eco –Textile 20 different manufactures were selected and then were asked different questions basis of three categories, The Manufactures feedback analysis is shown in Table no 2.

S.No.	Variables	Lengthy Process	Low technical development	Acceptance & demand in the market	Complicated Norms of DEP&DFE
(1-20)	Manufactures compiled analysis	05	Nil	04	11

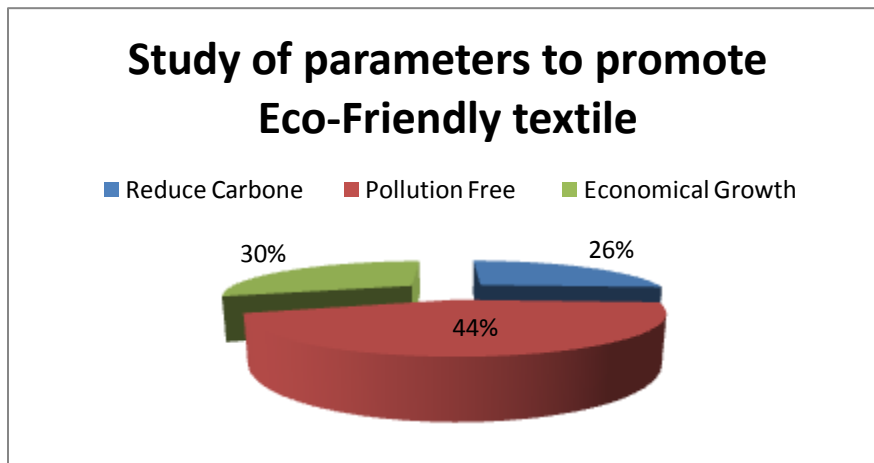


After the study of table no 2 it is that clear no Manufactures gave reasons about related to the lack of technical development for the production of Eco Textile production, Manufactures were of the view that lengthy process ,less acceptance and demand in the market along with complex norms of DEF &DEP for less production of eco friendly textile ,out of the 20 manufactures served 05 manufactures were of the

opinion that lengthy process is a reason for less production of eco friendly textile .Further study of table one reveal that 11 manufactures held responsible complex norms of DEP and DFE for the less production of eco friendly textile ,only 04 manufactures were of the opinion that less demand of eco friendly textile is responsible for its low production by the manufacturing industries.

Study of parameters to promote Eco-Friendly textile:-

S. No	Reduce Carbone	Pollution Free	Economical Growth
1	13	22	15



To study the various parameter to promote eco friendly textile in fashion world its clear from table 3 that out of 50 randomly selected responded maximum 22 responded were the opinion that the production process of eco friendly textile being pollution free is

the most important parameter for its promotion .The 15 responded were of the view that because of extremely highly demand of eco friendly textile in the foreign market and its haze export potential leading to cover all economical growth of the



manufactures as well as the textile market is the second important parameters for its promotion. Finally, it can be concluded from Table 3 that the respondents were of the opinion that the manufacturing process of the eco-friendly textile has a being a reduced carbon processed is a considerable parameter for the promotion of eco-friendly textile.

From the survey and interview of the respondents it was also found that the below-mentioned facts increase the acceptance in the national market in eco-friendly textile.

1. Increase productivity of recycled product.
2. Textile ministry provides special offers (subsidies) on production of eco-textile.
3. Consumer awareness.
4. Develop Textile Testing lab and highly technology machineries are also implemented.
5. Eco-friendly textiles are anti-allergic.

III. CONCLUSION

Eco-Friendly Facts behind the Organic Cotton and bamboo

1. Organic cotton or bamboo is a great eco-friendly fabric. It is grown without the use of pesticides, herbicides or other chemical fertilizers, and is simply better for your health and the environment.
2. Organic agriculture (food and fiber) protects the health of people and the planet by reducing the overall exposure to toxic chemicals from synthetic pesticides that can end up in the ground, air, water and food supply, and that are associated with health consequences, from asthma to cancer.
3. Natural cottons are useful in textile production due to their natural wicking properties, absorption of dye, water and color and their ability to stabilize other fibers.
4. Bamboo because of its luxurious softness, smooth hand, flowing and gentle drape, and easy price – at least compared with silk and cashmere – and eco-friendly cachet, bamboo has gained entry throughout the fashion industry.
5. Bamboo plantations are large factories for photosynthesis which reduces greenhouse gases. Bamboo plants absorb about 5 times the amount of carbon dioxide (a primary greenhouse gas) and produce about 35% more oxygen than an equivalent stand of trees.
6. Increase demand and production of eco-friendly fiber increase awareness and productivity of recycled product.

- **Social responsibility:** Chemicals and pesticides invade drinking water and groundwater, polluting it for fish and even reaching human consumption. Organic and eco fibers grow without any pesticides or chemical fertilizers.
- **Biodegradable:** Eco and organic fabric biodegrade naturally over time. Synthetic fibers eventually become waste and let off harmful toxins when they degrade.
- **Health:** Many people are allergic or dislike wearing synthetic textiles. Eco fabrics have all the properties of the new synthetic breathable fibers with added softness and drape. They feel better against the skin.
- **Absorption:** Not only do its chemicals reach into the groundwater, conventional clothing is worn next to the most porous organ skin. Organic and eco fibers are natural and do not contain irritating chemicals. Many of them are also considered hypoallergenic and naturally antibacterial.
- **Popularity:** Organic foods have been around for a while and it is a natural evolution that organic and eco-friendly fabrics will also gain popularity. Eco and Organic fabrics once considered an alternative are now entering into the mainstream.

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