Environmental Sustainability: The Emerging Issues in India’s Textile Sector

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ABSTRACT

The Indian textile industry is significantly contributing to the socio-economic development of the country but is often condemned for adverse environmental impacts. The textile industry encompasses huge consumption of raw material and produces high volume of waste as byproduct. When the waste is released into the environment, it contaminates the environment by polluting air, water, land and soil. The pollution impact of wet processing and fiber production is very detrimental to the environment. Whereas, yarn formation and fabric formation are responsible for heavy noise and dust generation in the workroom. Taking this forward, current study has makes an attempt to present an overview of environmental sustainability status of Indian textile industry and provide necessary suggestions. It is found from the study that pollution impact from fiber formation and wet processing of textiles is spread beyond shop floor but pollution impact of yarn formation and fabric formation are limited to the workroom only. An efficient waste management system can reduce these impacts.

KEYWORDS
Climate Change, Environmental Health, Environmental Sustainability, Pollution, Textile Industry

INTRODUCTION

Textile industry is considered amongst the largest manufacturing industry in the world. Since birth it is continuously contributing to the socio-economic development of many country in the world. In India, it is the second largest producer of textile and garments after china (Thiruchanuru & Venugopal Rao, 2014) which offers 14% to the industrial production, 4% to the country’s gross domestic product (GDP) and 17 per cent to its export earnings. In addition, the industry provides direct employment to over 45 million people and another 60 million people are employed in the allied works (Kulkarni, 2015; Thiruchanuru & Venugopal Rao, 2014). Despite these significant support, Indian textile industry often condemned for adverse environmental Impact because of the use of toxic chemicals, old & obsolete machinery and technology (11th-Five-Year-Plan, 2007; R. Chavan, 2001; Smriti-Chand-Industries, 2011). The environmental degradation by the textile industry is occurred from raw material procurement to finishing of the end product. Each and every processing steps are involved in environmental degradation directly or indirectly by polluting water, air, land and noise. At very
beginning the use of heavy pesticides and fungicides during natural fiber cultivation emits huge CO₂, SO₂ even higher than manmade fiber into the air and pollutes the air (Myers, 1999; Yates, 1994). On the other hand wet processing of textiles used huge water along with thousands of toxic chemicals and generates huge poisonous effluent (Das, 2000; Garrett, Shorofsky, & Radcliffe, 2016). When this effluent released to the environment without pretreatment they pollutes the water, air and land simultaneously and distress the natural biodiversity heavily (Babu, Parande, Raghu, & Kumar, 2007; Das, 2000; Malik, 2002). The fiber to fabric formation processes like fiber processing like ginning, yarn formation and fabric formation uses high speed machine which are highly susceptible to generate heavy noise and dust in the work area (Ashraf et al., 2009; Bedi, 2006; R. Chavan, 2001; Haider, Taous, Rahim, Huq, & Abdullah, 2009; Hasanuzzaman & Bhar, 2016; Talukdar, 2001). Keeping these forward, the study intends to determine the environmental impact of textile industry to estimate the current environmental sustainability status and provide some necessary way out.

DIFFERENT STEPS OF TEXTILE PROCESSING

Textile manufacturing is a lengthy and complicated process that convert fiber into yarn and yarn into fabric. These are then dyed and fabricated into cloths. Based on fiber type and end product the textile manufacturing process steps are either natural fiber process line or manmade fiber process line. The entire textile manufacturing process steps are shown in Figure 1. Sometimes a big conglomerate company integrates all the processing steps starting from fiber production to garment manufacturing whereas, in another way these total production steps disintegrated into separate company and controlled by different corporate identity. The each step of textile manufacturing requires high speed machinery, associated raw-materials (chemicals, water etc.) and man power. The high speed machineries and raw materials such as synthetic chemicals are responsible for several environmental hazards namely water pollution, air pollution, noise pollution, soil pollution etc. India is the first country in the world to take initiative for environmental protection and introduces rules and regulations into its constitution for the same after the Stockholm conference in 1972 (Nelliyat, 2007). The Indian textile industry also take initiative to reduce environmental impact due to textile industry but till December 2016 the

Figure 1. Textile process steps

![Diagram of Textile Process Steps](image-url)
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