Energy consumption, environmental impact, and implementation of renewable energy resources in global textile industries: an overview towards circularity and sustainability

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ABSTRACT

This study aims to review the energy consumption, environmental impact, and implementation of renewable energy in textile industries to enhance circularity and sustainability in the textile industry. Textiles and clothing are the fundamental needs of human beings; this sector consumes an abundant amount of fossil fuels as the main energy supply and has impacts on the environment. However, alternative clean sources of energy can be applied in the textile industry. Moreover, the gradual elimination of fossil fuels and the implementation of renewable energy resources in textile industries is essential. By this paper, fossil energy usage in textile industries and its impact, as well as the application of alternative energy in textiles, can be perceived. In this study, the background of the textile industry, energy consumption, environmental impact, alternative sources, and saving of fossil energy has been narrated tidily. In summary, generally, more than 50% of thermal energy and around 70% of electricity are used in various processes of the textile industry. Along with fossil fuels, it has some adverse effects on the environment. But alternative energy sources and improved energy efficiency can reduce this pollution. Nevertheless, currently, textile industries consume plenty of fossil fuel energy to produce end products; there are huge opportunities to implement renewable energy as well as applying BAT and advanced technology can also increase the existing energy efficiency in the textile industries. Since textile is the eternal demand of human beings, we must give extra effort to this sector and save the immediate vicinity of mankind as well.

KEYWORDS

Energy consumption; Environmental impact; Implementation; Textile industry

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