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IMPLEMENTATION OF THE CIRCULAR ECONOMY PRINCIPLES IN THE TEXTILE INDUSTRY

Abstract

With the rapid rise of instability in the global economy and more intensive depletion of resources, there is a need to adopt a new economic model that is becoming a business imperative. In order to improve resource performance, many companies have taken action to find ways to reuse products or their components and restore inputs of production, materials, energy and labour. Many companies today have begun to use the principles of the circular economy to create products that are more durable, easy to reuse or recycle, and more profitable. Having in mind that the textile industry is one of the most environmentally harmful industries, the purpose of this paper is to point out the advantages that the transformation of the traditional (linear) production model into a circular model of industrial activities has for increasing the environmental sustainability of this industry.

Keywords: *circular economy, textile industry, sustainable development, H&M Group*

JEL classification: *Q53, Q54, Q56*

ПРИМЕНА ПРИНЦИПА ЦИРКУЛАРНЕ ЕКОНОМИЈЕ У ТЕКСТИЛНОЈ ИНДУСТРИЈИ

Апстракт

Наглим порастом нестабилности у глобалној економији и интензивнијим исцрпљивањем ресурса, јавља се потреба за усвајањем новог економског модела који постаје императив пословања. У циљу побољшања перформанси ресурса, многе компаније су предузеле активности ка проналажењу начина за поновну употребу производа или њихових компоненти и обнављање инпута производње, материјала и енергије. Многа предузећа су данас почела да користе

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принципе циркуларне економије ради стварања производа који су трајнији, који се лако поново користе или рециклирају, и који су профитабилнији. Имајући у виду да текстилна индустрија спада у једну од еколошки најштетнијих индустријских грана, сврха овог рада је да укаже на предности које трансформација традиционалног (линеарног) модела производње у циркуларни модел индустријских активности има за повећање еколошке одрживости ове индустријске гране.

Кључне речи: *циркуларна економија, текстилна индустрија, одрживи развој, H&M група*

Introduction

Companies that successfully design products for a circular economy have to reorient business models and practices in order to capture considerable value and create lasting, rewarding relationships with customers.

Innovations in the way clothes are made have not kept pace with the acceleration of how they are marketed. The textile industry is characterized by a relatively low-tech production system which has huge environmental effects. However, the early 21st century has been good for the textile industry. Some estimates show that the number of garments purchased each year by the average consumer has increased by 60 per cent. By compressing production cycles, companies have enabled shoppers to expand their wardrobes and refresh them quickly. In nearly every apparel category, consumers keep clothing items for about half as long as they did 15 years ago. McKinsey's estimates suggest that consumers treat low-priced garments as disposable, discarding them after just seven or eight wears (Bouton et al., 2016).

1. The circular economy: moving from theory to practice

The UN Sustainable Development Agenda 2030 has defined basic development goals where a transition to the circular economy is one of the goals in the field of environment and climate (Radukić & Kostić, 2019, p. 435). The circular economy is considered an instrument for achieving the goals of sustainable development and it involves long-term investment in raw materials and energy efficiency, reduction of pollutant emissions, use of renewable energy sources, and implementation of sustainable production and trade models, thus closing the circle "product-waste-product" (Petrović-Ranđelović & Radukić, 2022, p. 324).

Marković et al. (2020, p. 3) state the concept of sustainable development is considerably wider than the concept of a circular economy. Because of that, there are many similarities and differences between them. Key similarities are intra and intergenerational commitments, global models, multi-/interdisciplinary research fields, innovative business models, technological solutions etc. Basic differences are: circular economy is a newer and narrower concept, circular economy emphasizes economic and environmental benefits, while sustainability provides a broader framework etc.

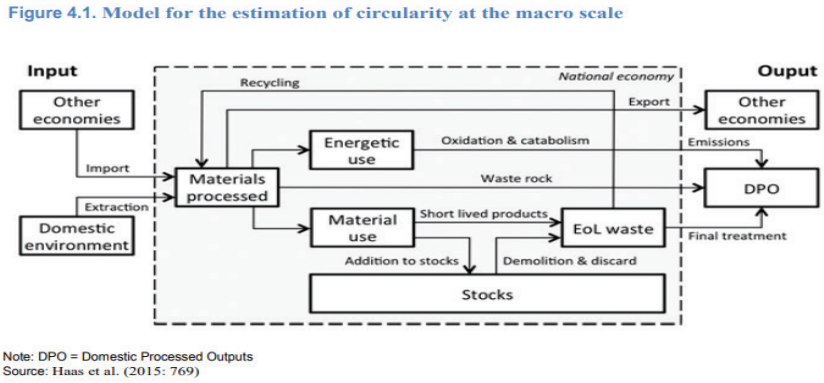
Instead of the linear model of production (take–make–dispose), the circular economy is restorative by design-using throughout the life cycles of finished products. The circular model offers an opportunity for companies to increase the productivity of resources, decrease dependence on them (as well as waste), and raise employment and growth. Companies can also reduce operating costs, strengthen relationships with customers, employees and providers, and can improve macro and micro competitiveness.

On the other hand, higher levels of circularity may incur substantial economic costs for companies. Accompanying risks include higher commodity prices, waste, environmental impact, resource scarcity and earth overuse. In this regard, it is important to point put the principles of the circular economy: durability, renewability, reuse, repair, replacement, upgrades, and reduced material use. Some authors systematize these principles and define three main principles (Bouton et al., 2016):

1. Preserve and enhance natural capital by controlling finite stocks and balancing the flow of renewable resources.
2. Optimize resource yields by circulating products, components, and materials in use at the highest possible levels at all times.
3. Make the system more effective by eliminating negative externalities.

Figure 1 shows a simple model of economy-wide material flows and depicts the different flows and processes to assess the circularity of the economy. This presented model is based on the conceptual framework and the system boundaries applied in economy-wide material flow accounting. It defines the flow of materials from extraction and import, by processing, immediate consumption, or temporary accumulation in material stocks to recycling or final treatment before all materials finally leave the system as waste and emissions. All flows in the model can be quantified in order to assess the key characteristics of the circular economy (Haas et al., 2015).

Figure 1: Circularity model at the macro level



Notes: EoL waste = end-of-life waste; DPO = domestic processed output.
Source: Haas et al., 2015.

Indicators highly depend on the underlying definition of a Circular economy. MacArthur (2013) defines a circular economy as an economy in which material flows are made up either of biological materials, which after discard are integrated into ecological

cycles, or of materials designed to circulate within the socioeconomic system (MacArthur, 2013). Based on this definition, some researchers developed a set of six indicator pairs, which allows measurement progress towards a circular economy in terms of closing material cycles (Table 1).

Table 1: Circular economy indicators

	Dimension	Input-side indicator	Output-side indicator
Scale indicators (t)	In and output flows	Domestic material consumption **DMC**	Domestic Processed outputs **DPO**
	Consumption based perspective	Row material consumption **RMC**	
	Interim flows	Processed materials **PM** = **DMC** + secondary materials	Interim outputs IntOut = EoL waste + DPO emissions
Circularity rates (%)	Socioeconomic cycling SC	Input socioeconomic cycling rate **ISCr =** Share of secondary materials in PM	not applicable
	Ecological cycling potential EC	Input ecological cycling rate potential **IECrp** = Share of DMC of primary biomass in PM	Output ecological cycling rate potential **OECrp** = Share of DPO biomass in IntOut
	Non-circularity **NC**	Input non-circularity rate **INScr** = Share of energetic use of fossil energy carriers in PM	Output non-circularity rate **ONCr** = Share of energetic se of fossil energy carriers in IntOut

Source: Mayer et al., 2019.

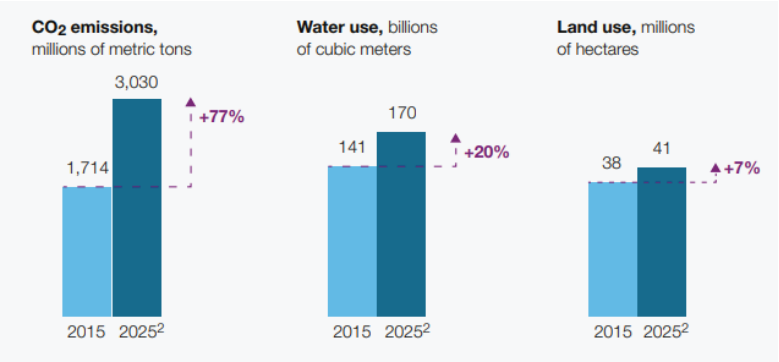
The indicators shown here are distinguished between scale indicators, which provide measures for the overall size of the social and industrial metabolism (O'Neill 2015), and circularity rates, which measure socioeconomic and ecological cycling relative to input and output flows. Providing independent measures for flows on both the input and output sides is necessary due to the delaying effect that input stocks of materials have on output flows.

The challenge of introducing a circular economy approach in developing countries is the low current level of waste management because of "the absence of proper environmental legislation, financial management and administrative capacities" (Ilić & Nikolić, 2016, p. 191). As a consequence, there is an increase in the amount of waste without its treatment that does not allow the exploitation of resources from waste, creating a huge loss of resources and the environment and human health threats. Therefore, this problem needs innovative solutions related to waste management drivers in the context of a circular economy in order not to restrict sustainable development.

Many companies that have been identified as polluters have had to change their business strategies and apply the principles of sustainable development in accordance with environmental legislation (Radukić, Perović & Petrović-Ranđelović, 2019). Some authors explore how business strategies can help companies to capitalize on the opportunities of the

circular economy. Cross-functional collaboration and customer-focused design thinking can help companies to get more value from the resources they use. With respect to the circular economy, design thinking means asking how to provide value to consumers using a minimum amount of material. Companies have to consider what happens to their products after they are purchased. Instead of considering only functionality and costs, companies should look at how they might manage the entire life cycle of their products in order to maximize value. As consumer spending increases, especially in emerging economies, the textile industry's environmental impact could expand greatly. Figure 2 shows the increases in environmental impact if 80% of emerging markets achieve Western *per capita* consumption levels.

Figure 2: Environmental impact of the textile industry in emerging markets



Source: Bouton et al., 2016, p. 34

In this part, we point out additional steps that companies can take to remove some of the environmental risks that are commonly part of the fast-fashion model:

- Develop standards and practices for designing garments that can be easily reused or recycled.
- Provide suppliers with guidance and resources for meeting new labour and environmental standards.
- Invest in the development of new fibres that will decrease the environmental effects of production.
- Encourage consumers to care for their clothes in low-impact ways.
- Support the development of mechanical and chemical recycling technologies.
- Establish higher labour and environmental standards for suppliers and set up mechanisms to make supply chains more transparent.

2. Characteristics of the textile industry

Industry, as an economic activity, is in many ways connected with other economic activities and it is considered a leading area of business. It has a dominant role in the formation of gross domestic product (GDP) and growth, participation in production funds, employment and investment (Veljković & Jovičić, 2015).

Modern industrial production is characterized by high consumption of raw materials, energy and water, but also excessive emissions of pollutants into the air, as well as into surface and groundwater. As a result, this economic activity, which has a material-intensive character, is in multiple connections with the state of the environment. The change in the state of the environment, which is caused by the exploitation of natural resources and the processing of natural substances industrially, is reflected in the destruction of vegetation and physical change of the landscape while increasing environmental pollution is caused by large amounts of industrial waste.

The textile industry is one of the oldest and fastest-growing industries in the modern world economy. It is a basic industry for developing countries that follow an export-oriented growth strategy. Being a labour-intensive industry, the textile industry offers opportunities to create new jobs that will absorb the surplus of low-skilled labour in developing countries. This statement is confirmed by the experience of some countries, such as Bangladesh, Sri Lanka, Vietnam and Mauritius, where the development of the textile industry in the initial stages of industrialization has allowed them to achieve a development leap, i.e. high growth rates in that industry, which enabled them to turn from poor countries into middle-income countries.

There are a number of reasons justifying the significant role of the textile industry in economic development. First, the textile industry absorbs a huge amount of unskilled labour, primarily from the agricultural sector, and as a result, it is a significant source of employment. Second, the expansive growth of the textile industry is a source of capital to finance investments in technology-intensive industrial activities. Third, a higher growth rate of the textile industry can contribute to the import of more advanced technology, which is financed by revenues generated from the export of clothing.

We cannot imagine a world without textiles and clothes, which are an indispensable part of everyday life. Everyone wears clothes and for many, it is an important expression of individuality. With annual revenues of over $ 1.3 billion, the textile industry employs more than 300 million people along the value chain, while just cotton production accounts for nearly 7% of total employment in some countries at a lower level of economic development. Clothing represents more than 60% of the total textiles used, and it is expected that this trend will continue in the future. In the last 15 years, the production of clothing has almost doubled, due to the faster growth of the fast fashion industry, which expands the choice for consumers, thanks to shorter production cycles, faster turnover of styles, and the increased number of collections offered annually at lower prices.

As a resource and energy-intensive industry, the textile industry leaves far-reaching environmental, economic and social consequences. Textile industry emissions are estimated at 1.2 billion tons of CO_2 equivalent per year, close to the level of emissions from the automobile industry (World Economic Forum, 2019). The textile industry is expected to increase CO_2 emissions by more than 60% (approximately 2.5 billion tons per year) by 2030, with water consumption increasing by about 50%. The ecological footprint of the industry, especially the impacts of textiles and related chemical waste, remains a global challenge and opportunity to undertake research and development activities in order to innovate processes and products and achieve sustainable development. As a result, "various initiatives emerged: one of these is the Fashion Industry Charter for Climate Action, signed by leading fashion brands, suppliers and other partners under the auspices of the UN's climate change initiative. Signatories, including the Lenzing

Group, are committed to a 30% reduction in greenhouse gas emissions by the year 2030" (World Economic Forum, 2019).

Within the textile industry, the awareness of the business community about the global impacts of the current linear production system is growing. The negative effects of the linear model occur during the extraction of raw materials and production inputs to distribution and use, which results in large amounts of generated waste and environmental degradation. In recent decades, the activities and interests of economic policy makers and the business sector in the direction of developing sustainable practices and the application of environmentally friendly technologies have increased. The main goal is to enable the transition from a linear to a regenerative circular system in which the use of products and materials is stored and maintained in closed-loop cycles, and associated waste, energy and emissions are minimized and gradually eliminated. Such practices range from resource extraction and material production to business models, design and perception principles, and consumer engagement.

Facing environmental challenges in the textile industry requires the development of environmentally friendly technology and processes at all stages, from the production of raw materials to the management and design of waste streams. Textile recycling technology is a key element in the transition to a circular system, especially by establishing flows from fibre to fibre. In addition, the issue of the influence of chemicals from the dyeing and finishing processes used to make textiles for clothing should be considered.

3. Environmental performance of the textile industry

The textile industry is one of the oldest branches of industry, which deals with the processing of fibrous raw materials and the production of fabrics, knitted products and yarns. The key source of input for the textile industry is agricultural production, from which they get raw materials, such as wool, linen, cotton, silk, jute, etc. Its development is largely determined by climatic conditions and the availability of raw materials in a national economy.

The textile industry is one of the longest and most complicated industrial chains in the manufacturing industry. It includes actors not only from agricultural production, but also actors from the production of chemical fibres, the production of dyes and chemical production, the textile industry, the retail and service sectors, and waste treatment (Curteza, n.d.). The textile industry covers a wide range of production activities, and its diversity is reflected in terms of the use of raw materials and production techniques, as well as chemicals in the production process and the final product of the textile industry, i.e. the production of various clothing and fabrics.

Viewed from the aspect of environmental protection, the textile industry is, in addition to the oil industry, the most environmentally harmful branch of industry in the world economy. It participates to about 10% of the total world's CO_2 emissions, while various harmful substances (about 25% of the total) and a significant amount of water are used in the production process.

The basic processes that take place in the textile industry relate to the following:

1. production of yarns and fabrics (i.e. spinning and weaving),
2. chemical treatment (i.e. dyeing of yarns and fabrics, sizing, rinsing, bleaching, treatment, finishing of fabrics),
3. clothing (i.e. production and finishing of clothing).

Environmental problems that accompany the textile industry relate to (1) the use of toxic chemicals, (2) pollution of water resources due to the discharge of wastewater from the production process, (3) energy consumption, (4) air pollution, and (5) waste production. Two main categories of environmental impact from textile production and processing are pollutant emissions and water and energy consumption (UNEP, 2011). Releases of pollutants can lead to air, water and soil pollution due to the use of chemicals. However, air emissions are a small, but not a negligible source of pollution, while water pollution is a major problem due to the release of chemicals and auxiliaries into wastewater (Cvijić et al., 2021, p. 37).

The textile production process is characterized by high consumption of resources, such as water, fuel and various chemicals in a long process that generates a significant amount of waste, including liquid, gaseous and solid waste, some of which are very hazardous. The nature of the generated waste depends on the type of installed capacity, production process and applied technology, as well as the type of fibres and chemicals used.

The textile industry uses large amounts of water during its operations, from washing fibres to bleaching, dyeing and washing finished products. On average, about 200 litres of water are needed to produce 1 kilogram of textiles. The textile industry is characterized by the use of not only a large amount of water needed to perform various operations but the use of various chemicals for various processes in order to obtain the desired quality of fabrics. According to World Bank estimates, dyeing and finishing processes account for 17% to 20% of industrial water pollution (Kant, 2012). It has also been found that a number of chemicals used in the textile production process evaporate into the air, some dissolve in wastewater released into the environment, and others are absorbed by human skin using textiles.

In the process of chemical treatment and finishing of clothes, a huge amount of wastewater is created, since these processes themselves are based on the use of water. These wastewaters can impair the quality of the environment, as they are highly alkaline and risky for the quality of groundwater and the entire ecological system. Consequently, the development of technologies for wastewater treatment generated in the process of chemical treatment of textiles is of great importance for solving environmental problems in this industry. Of all the steps involved in textile processing, it is the wet treatment that generates the largest amount of wastewater. There are a number of wet treatment phases that require the use of water, chemicals and energy, and that involve the generation of waste at each stage. Inadequate wastewater treatment before discharge into the environment can cause significant environmental damage.

This statement is confirmed by the following data. The average water consumption in a textile factory that produces about 8,000 kg of fabric per day is approximately 1.6 million litres. Of that, 16% is spent on dyeing (somewhere around 30-50 litres of water per kilogram of fabric), and half is spent on printing. In total, during the dyeing of the yarn, about 60 litres of water are consumed per kilogram of yarn. Wastewater discharged during the dyeing process makes up about 1/5 of the total wastewater. During the conventional dyeing and finishing processes of 1,000 kg of fabric, about two hundred thousand kilograms of water are contaminated in these phases, and a large amount of steam and hot water is used for energy (Toprak & Anis, 2017, p. 435). Countries such as China, India, the United States, Pakistan and Turkey put the greatest pressure on water resources today.

The toxicity of wastewater from the textile industry varies considerably among the installed capacities. Sources of wastewater toxicity may include salts, surfactants, ionic metals and their metal complexes, toxic organic chemicals, biocides, and toxic anions. Most

textile dyes have low toxicity to water. However, surfactants and related compounds, such as detergents, emulsifiers and dispersants, are used in almost every process and can significantly contribute to water pollution.

Textile processing consumes a lot of energy for heating, drying and operating machines that cause an increase in greenhouse gas emissions and carbon footprint. The processes of yarn and clothing production consume a huge amount of electricity, as the main source of energy in the textile industry. It is estimated that this consumption amounts to about 3/4 or 4/5 of the total energy needs in the textile factory, while about 15% to 20% of electricity is spent on starting various machines in wet textile processing. Energy efficiency can be achieved by using renewable energy sources in the textile industry, including the following: (1) installation of Turbo Ventilators on the roofs that rotate by wind, (2) use of direct solar energy for fibre drying, (3) use of solar energy for water heating in the textile industry (Hasanbeigi, 2010, p. 110).

Air pollution is also one of the environmental problems facing the textile industry, as most technological processes produce emissions into the atmosphere (dust, oil mist, acid fumes, odours and exhaust gases from steam boilers). In particular, this problem becomes more pronounced during the final phase, where different procedures are used for coating fabrics. After applying the coating, the procedure of treating the coated fabrics, and heating in ovens, dryers, frames, etc. follows. As a result, organic compounds evaporate into high molecular weight substances, usually hydrocarbon compounds, but also emission of larger particles, mainly fibres.

Solving this environmental problem faced by the textile industry is possible by undertaking the following activities: reducing emissions of organic solvents; using a device to collect contaminant particles; optimizing the operation of steam boilers to reduce emissions of nitrogen and sulphur oxides; checking the toxicity of chemicals before their use, using material safety data, to ensure that the chemicals are non-toxic; identifying sources of air pollution and quantifying emissions; creation of such products whose production does not emit toxic or dangerous air pollutants; improving working conditions by improving the system for minimizing emissions into the air caused by chemical spills.

Primary waste, which includes residues of fabric and yarn, unspecified yarn and waste from fabric and packaging, is not environmentally harmful. The textile industry also generates the type of waste generated during the storage and production of yarns and textiles, such as chemical storage tanks, cardboard reels for storing fabric and compartments used to hold yarns for dyeing and knitting. Waste in the cutting room creates a large amount of fabric residue, and it can be minimized by increasing the efficiency of using the fabric when cutting and sewing.

Recent years in the textile and clothing industry have witnessed the transfer from the linear economy model to the circular economy model because of several trends: fast fashion and consumerism affecting the shorter active life of clothing, expanding global population and middle class, and the falling prices of clothing that increase in the demand for relatively inexpensive textile and clothing products. The textile and clothing industry faces new challenges concerning a transition towards a circular economy: waste prevention and the minimization of landfilled waste. Koszewska (2018) suggests three crucial phases for the circular economy model: product design and development, waste collection and sorting and effective recycling.

4. The circular business model of H&M Group

Companies that apply linear business models face significant environmental risks, among which the following stand out in terms of importance:

1. resource constraints and resource scarcity,
2. variability and increase in prices of resources and energy,
3. regulatory requirements and environmental protection standards,
4. change in market demand in the direction of increasing the sustainability of products and services,
5. impacts of environmental degradation.

Such environmentally risky business can cause potentially great damage to companies in the textile industry, by reducing their reputation among consumers, and also by reducing their competitive advantages and opportunities.

As public awareness of the importance of environmental protection increases, also the pressure on companies in the textile industry to take action to change dominant business models and produce environmentally friendly products is increased. For this reason, many companies in the textile industry are introducing new, environmentally friendly production methods based on a circular approach. The circular economy approach means "to being more profitable (Lancaster, 2002) while also less harmless for the environment" (Sariatli, 2017, p. 32). In order to create sustainable textiles, it is necessary to use environmentally friendly materials, which will generate less non-hazardous waste, reuse or recycle materials, and use less energy, water and chemicals. This statement is confirmed by the positive business practice of some companies in the field of the textile industry, such as H&M Group, which has gone through a transition from a linear to a circular business model and has made remarkable progress in industrial environmental protection.

The textile industry is undergoing an accelerated process of transformation and development, as has the H&M Group itself. The company has been continuously working to increase the sustainability of its business for a full 20 years, and in 2017 an ambitious strategy was launched to redefine the business approach. Significant activities have been undertaken for the complete transformation of the business strategy. H&M Group's vision is to achieve a transition to a circular and climate-positive fashion while remaining an honest and fair company (H&M Group, 2021). The Change-Making Program translates H&M Group's vision and strategies into concrete actions through goals, guidelines, standards and monitoring methods. This program enables H&M Group brands and functions to integrate the sustainability strategy into everyday business processes, by creating their own sustainability goals and activities. The company's strategic activities are aimed at solving key problems in the industry, which is a significant driver of another strategic ambition: to become a completely circular and climate-positive, and at the same time an honest and fair company. These changes should be achieved through three key areas: (1) innovation - identifying and assessing new ways of working and solving complex social and environmental challenges; (2) transparency - informing the public about how the company's business is realized, informing about its performance and challenges, as well as disclosing more details about the company's products; (3) rewarding sustainable actions - working with consumers, employees and suppliers to encourage sustainable behaviour.

The company focuses its activities on two key areas (H&M Group, 2021, p. 29): achieving full circularity and solving the problem of climate change, i.e. becoming climate positive.

First, the application of circular models involves optimizing resources and minimizing waste, so that resources remain in use for as long as possible before being recycled. The goal is for the company to fully implement a circular business model, which includes every phase of the value chain, from design and production to consumer use, reuse and recycling, using only sustainable, renewable and recycled resources.

Recycling extends the life of used fabrics, while recycled fibres reduce the consumption of raw materials, the use of chemicals, energy and water. The company uses many recycled materials, including cotton, polyester, wool, nylon, plastic, down and feathers, cashmere and silver.

The application of the circular approach is not limited to products, but also to non-commercial goods, such as packaging and items that stand in the interiors of stores, offices and other buildings. Namely, the linear packaging model has a great impact on the environment, especially when it comes to plastics. In order to completely switch to a circular business model, it is necessary that retail facilities, distribution centres and offices be built and fully regulated according to the principles of the circular economy.

The company's circular business model also includes undertaking activities to eliminate waste, namely operational waste (the goal is to reuse or recycle waste generated in offices, stores and distribution centres), production waste (more efficient waste management generated by suppliers), and waste generated by product defects and surplus goods (using artificial intelligence tools to match demand with production).

Second, the company aims to become climate positive by 2040, by reducing carbon dioxide emissions. The application of the circular model is becoming an important instrument for achieving this goal, along with taking steps to reduce energy use through the value chain, using renewable energy and finding natural and technological reservoirs for the accumulation and storage of carbon-based chemical compounds.

Conclusion

In recent years, there has been an increase in the production and consumption of textile products as a result of population growth and improved living standards. As a consequence, there is an excessive use of resources for the needs of the textile production process, as well as an increased impact on the environment through an increase in the amount of generated textile waste and pollution.

Recently, the concept of circular economy has been developed within the concept of sustainable development with the aim of eliminating the negative impacts of the economy on the environment. The application of this concept requires a change in the business strategies of companies and the transition from a linear to a circular model of production and consumption of products while stimulating innovation and new technological solutions.

In recent decades, the activities and interests of economic policymakers and the business sector in the direction of developing sustainable practices and the application of environmentally friendly technologies have increased. The main goal is to enable the transition from a linear to a regenerative circular system in which the use of products and

materials is stored and maintained in closed-loop cycles, and associated waste, energy and emissions are minimized and gradually eliminated. Such practices range from resource extraction and material production to business models, design and perception principles, and consumer engagement.

The textile industry is one of the oldest and fastest-growing industries in the modern world economy. It is a basic industry for developing countries that follow an export-oriented growth strategy. Being a labour-intensive industry, the textile industry offers opportunities to create new jobs that will absorb the surplus of low-skilled labour in developing countries.

Two main categories of environmental impact from textile production and processing are pollutant emissions and water and energy consumption. Companies that apply linear business models face significant environmental risks and such environmentally risky business can cause potentially great damage to companies in the textile industry, by reducing their reputation among consumers, and also by reducing their competitive advantages and opportunities.

Positive business practice in the field of the textile industry is recorded by H&M Group, which has gone through a transition from a linear to a circular business model and has made remarkable progress in industrial environmental protection from 2017 when an ambitious Change-Making Program was launched to redefine its business approach. The company's strategic activities are aimed at solving key problems in the industry, which is a significant driver of another strategic ambition: to become a completely circular and climate-positive, and at the same time honest and fair company. These changes should be achieved through three key areas: (1) innovation; (2) transparency; and (3) rewarding sustainable actions. The company focuses its activities on two key areas: achieving full circularity and solving the problem of climate change, i.e. becoming climate positive. The example of the H&M Group in the application of the circular economy model and its business success should serve other companies as well so that the application of this model in the textile industry would be widespread.

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