



Promotion of Circular Economy in the Mexican Apparel industry

25 ANIVERSARIO



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Introduction

Centro Mexicano de Derecho Ambiental, A.C. (CEMDA) is a non-political, non-profit, non-governmental organization which, since 1993, has worked to defend the environment and natural resources. CEMDA's mission is to work for environmental justice, the wellbeing of persons, and development in harmony with nature.

The economic and environmental situation in the Mexican context is an opportunity to promote a shift toward a circular economy in the apparel industry. The demographic explosion, mounting pressure on natural resources, unchecked production of waste and discharge of polluted water, and growing demand for services open the door for the country to transition to another model of production and business which generates greater economic performance and lower environmental impact.

With the valuable support of C&A Foundation, CEMDA promotes the transition to a circular economy in the Mexican apparel industry by publishing this document, with the aim of identifying barriers and areas of opportunity in the existing legal framework to present targeted recommendations. Thus, we seek to offer people who make decisions and execute strategic actions a clear overview of the reforms and the development of legal and environmental policy instruments necessary to promote a *circular economy* in the Mexican apparel industry.

In line with these objectives, CEMDA conducted a document-based investigation of the applicable legal framework, analyzing strategic information from domestic and international sources, collected through websites, libraries, public reporting, working meetings and news outlets, among other sources of information.

The legal analysis took into account human rights, constitutional foundations, international commitments, and applicable Mexican laws.

In addition to targeted recommendations derived from the definition of relevant rights and obligations, we present a series of specific recommendations for the legislative and executive branches of government and a roadmap with precise proposals, the viability of whose implementation depends on the ability to build consensus and the correlation of political forces represented in the present legislature.

In order to form an approach which considers practical aspects and current issues related to the circular economy, particularly in the Mexican apparel industry, in preparing this document a strategic stakeholder's map was also developed and a series of conversations, calls, and feedback meetings were held, which helped to better understand the issue in Mexico's present-day context. Also, 17 interviews were conducted with people who work in vintage clothing stores, civil society organizations, academics, and members of the Mexican business community who work on and support the issue of a circular economy.

The document is divided in six chapters. Chapter One explains why a circular economy is needed in the Mexican apparel industry. It examines the vast inefficiency seen in the use of economic and natural resources, which are not controlled or contamination of which is not effectively sanctioned.

Chapters Two and Three refer, respectively, to the features of a circular economy and the Mexican apparel industry's transition to such a model. They present an approach to the concept of circular economy, briefly discussing the four principles which support it. We describe the general features of the circular economy to establish a baseline of common understanding among readers. Also, we analyze the apparel industry's relevance for Mexico's economy and society, and explain the value chain which supports the industry in Mexico.

Chapters Four and Five focus on the central objective of the diagnosis: describe the applicable legal framework and identify legal barriers and areas of opportunity for the Mexican apparel industry to transition to a model of circular economy. They also present the main findings reported by the investigation. Chapter Six offers targeted recommendations, by priority area, and steps to take to promote the transition to a circular economy in the Mexican apparel industry.

To close the document, the conclusions offer an overview of the main aspects of the study.

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1. Why a circular economy in the Mexican apparel industry?

The proposal for a circular economy is based on the importance of ensuring that “the value of products, materials, and resources is maintained in the economy for the longest possible time, and the generation of waste is minimized.”¹ The idea is to maintain a steady flow of resources so that they can continue to be used advantageously, over and over again, and continue to add value. On the other hand, the shift from an economy built on a linear model to a circular model conditions how people use things, how industry produces, and how society uses its increasingly limited resources.²

The Mexican apparel industry needs to transition to a circular economy because it is highly inefficient, from both an economic and an environmental perspective. It is an industry which wastes vast economic, material, and natural resources, which in turn generates substantial economic losses and huge quantities of waste with untapped potential. At the same time it has tremendous environmental impact with possible repercussions for human health.

For the purposes of this study, the apparel sector is understood as the design, manufacture, production and sale of fibers (natural and chemical), and materials (yarns, fabrics), as well as clothing garments, footwear and accessories such as bags and hats.

Worldwide, less than 1% of material used produce new clothing is recycled into new clothing, representing a loss of more than USD 100 billion worth of materials each year. As well as significant value losses, high costs are associated with the elimination or final disposal of waste: for example, the estimated cost to the UK economy of landfilling clothing and household textiles each year is approximately USD 108 million³ each year. Whereas in countries like Germany approximately 65% of textile waste is recycled, Mexico recycles just under 5%; this is largely due to a lack of innovation and high production costs.⁴

As reported in the study *A New Textiles Economy: Redesigning Fashion's Future*, more than USD 500 billion in value is lost from the system every year due to under-utilized clothes and the lack of recycling.⁵ Also, high volumes of non-renewable resources are extracted to produce clothes that are often used for only a short period, after which the materials are largely lost to landfill or incineration. One need only think of a shirt which will be used only a few times before it is discarded, along with all the plastic and/or paper packaging in which it was delivered.

1 European Commission (2015). COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS. COM (2015) 614. Closing the loop - An EU action plan for the Circular Economy. Brussels, Belgium. See: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52015DC0614> (Consulted 12-03-2019).

2 Interview with Mireille Acquart, Director of Ethical Fashion Space, conducted February 20, 2019.

3 Ellen MacArthur Foundation (2017). A new textiles economy: Redesigning fashion's future, p. 20. Recovered from https://www.ellenmacarthurfoundation.org/assets/downloads/publications/A-New-Textiles-Economy_Full-Report.pdf (Consulted 12-22-2018).

4 Zavala D. (2017). Un deseo cumplido: ropa con telas recicladas, México, Manufactura. Recovered from <https://manufactura.mx/industria/2017/04/17/un-deseo-cumplido-ropa-con-telas-recicladas> (Consulted 12-26-2018).

5 Ellen MacArthur Foundation. Op.Cit. (Consulted 12-22-2018).

Because the apparel industry depends on natural resources like water, it is a sector which must help to restore and regenerate ecosystems. To achieve that end, it must promote the use of safe materials and makes products designed to be reused and remade; the sector also must provide dignified work for people.⁶

Recently, a series of social and economic phenomena have influenced the sector, such as the start of a transition marked by digitalization and the challenges derived from the so-called "Fourth Industrial Revolution," which is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.⁷ However, in Mexico today, a majority of industries and companies in the apparel industry maintain a business model based on creating value in a product and then transform it into waste or waste water almost immediately after it is used. In other words, waste itself represents a substantial and meaningless economic loss.

The central root of this problem is that both the policy system and the existing legal framework are based on a linear understanding of the economy; consequently, the apparel industry, as an integral part of the system, operates on a predominantly take-make-dispose model.



Globally, the USD 1.3 trillion clothing industry employs more than 300 million people along the value chain.⁸ However, a linear economic model in the sector generates enormous costs and waste of economic and ecological resources. In particular, the apparel industry is among the most intensive users and consumers of water in the world; for example, more than 10,000 liters of water are used to produce one kilogram of cotton fibers to make clothing.⁹ In fact, the apparel industry is responsible for 20% of wastewater in the world and 10% of atmospheric carbon dioxide emissions.¹⁰

In Mexico, as in many countries, the legal framework and public policy have been shaped by a culture of *ownership* of goods and products, driving an economy which disregards environmental and social impact (externalities), and by extension business models, industry and commerce, and patterns of production and consumption follow suit.

⁶ C&A Foundation. (2018) Circular Fashion. See: <https://www.candafoundation.org/impact/circular-fashion> (Consulted 12-22-18).

⁷ Shawab K. (2016). The Fourth Industrial Revolution: What it means, how to respond. World Economic Forum. <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/> (Consulted 12-22-18).

⁸ Ellen MacArthur Foundation. *Op.Cit.* (Consulted 12-22-2018).

⁹ Moda es latinoamerica (2018). La ONU califica la industria del 'fast fashion' de "emergencia medioambiental". Spain/Latin America. See: <https://www.modaes.com/back-stage/la-onu-califica-la-industria-del-fast-fashion-como-emergencia-medioambiental-es>. (Consulted 12-22-018)

¹⁰ Ellen MacArthur Foundation. *Op.Cit.* (Consulted 12-22-2018).

The apparel industry commonly uses dangerous chemicals which are usually released into the environment with the resulting damage to ecosystems and hazards to human health. Manufacturing textiles and clothing requires both natural and synthetic raw materials, as well as the use of large quantities of water which, in turn, creates massive discharge of polluted wastewater, because the textile industry uses a variety of chemicals ranging from dyes for fabrics to printing and finishing. As a result, wastewater from those processes are usually toxic and effluents can pollute bodies of water endangering human health and the environment in general.¹¹

Today, in Mexico inefficiency in the use of economic and natural resources is neither controlled nor sanctioned, creating a perverse incentive which favors the wasting of valuable resources like water.

In addition, when washed, some garments release plastic microfibers, of which around half a million tons every year contribute to ocean pollution (16 times more than plastic microbeads from cosmetics).¹²

It bears considering that, in the last 15 years clothing production has approximately doubled in mature economies.¹³ Mexico anticipates rising consumption due to growth of the sector, and a resulting increase in environmental impact including pollution of bodies of water and greater production of waste and plastic microfibers.

Moreover, the circular economy also creates competitive advantages for companies in the apparel industry due to rising environmental awareness among consumers. In fact, today consumers support products which produce lower environmental and social impact. It is very important to emphasize that such changes are also driven by an economic interest, as consumers gradually begin to reject brands that produce high environmental impact.¹⁴


In the next section, we examine the characteristics that define the circular economy, to refine our approach to how the apparel industry in Mexico can adapt to adopt a more economically and environmentally efficient business model.

11 Greenpeace Mexico. (2012) Las once sustancias químicas a eliminar de la industria textil. See: <http://www.greenpeace.org/mexico/es/Campanas/Toxicos/Contaminacion-de-nuestros-rios/Detox/Las-once-sustancias-quimicas-a-eliminar/> (Consulted 23-01-2019).

12 Ellen MacArthur Foundation, *Op. Cit.*, p. 3.

13 *Ibid*, p. 18.

14 Cividan A. (2018). Climate concerns: The power of the resale market. London, England. WGSN Insider. See: <https://www.wgsn.com/blogs/climate-concerns-the-power-of-the-resale-market/> (Consulted 10-02-19).



2. Features of the circular economy



Any economic model depends on the resources and raw materials available to it. Therefore, in a linear economic model (“take-make-dispose”) permanent growth is impossible for the simple reason that the Earth’s resources and raw materials are finite.

The concept of circular economy is gaining global relevance as a model more harmonious with nature, which permits the continuity of the economy and contemporary means of subsistence. Such an approach implies transitioning to a model *“that is restorative and regenerative by design and aims to keep products, components, and materials at their highest utility and value at all times, distinguishing between technical and biological cycles.”*¹⁵



There are four principles that explain the concept of circular economy:¹⁶

1. Zero waste.

Nothing is thrown away, because waste is designed out by making things for repair, disassembly and reuse.

2. There are only two types of industrial ‘ingredients’:

- a) Disposable and biodegradable (like paper or fabric).
- b) Durable and reusable (like metal or plastic, which can be reused).

More complex objects should be designed to be dismantled so that they can be sorted into those two categories at the end of their lives.

3. Entirely renewable energy in the industrial cycle.

This also reduces businesses exposure to depletion of sources of energy resources.

4. Customers are no longer consumers, but users.

Seek to provide access to a service instead of ownership of a good. Companies are responsible for the product and its waste.

The circular economy seeks to close the circle of design, production, consumption, and management of waste (reusable and easy to detach or dismantle), to generate savings and economic efficiency by preventing waste of resources (and restoring and regenerating ecosystems). The goal is to preserve the value of materials and products for as long as possible, to minimize waste and consequently generate economic savings.

15 Ellen MacArthur Foundation (2015), Towards a Circular Economy: Business Rationale for an Accelerated Transition, p. 2. See: https://www.ellenmacarthurfoundation.org/assets/downloads/TCE_Ellen-MacArthur-Foundation_9-Dec-2015.pdf (Consulted 12-22-2018).

16 Williams J. (2014). Four Principles of the Circular Economy. Make Wealth History. United Kingdom. The Earthbound Report. See: <https://makewealthhistory.org/2014/02/06/four-principles-of-the-circular-economy/> (Consulted 12-22-2018).



Image 1: Circular Economy.
Source: Own elaboration.

This economic concept also promotes the pursuit of the Sustainable Development Goals (SDG),¹⁷ in particular SDG 7 (Affordable and Clean Energy), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation, and Infrastructure), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), SDG 14 (Marine pollution and plastic microfibers), and SDG 15 (Life of land ecosystems).

*“The circular economy does not have the mission of ‘saving the planet.’ The circular economy is the result of (re) framing our processes and our new way of relating with one another and with the environment.”*¹⁸ For the apparel industry, the concept of a circular economy is focused on achieving much greater efficiency from both an economic and an environmental standpoint, which helps reduce the vulnerability of companies in the sector in areas of supply and shifting patterns of consumption.

¹⁷ The Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate, environmental degradation, prosperity, and peace and justice. The Goals interconnect and in order to leave no one behind, it is important that we achieve each Goal and target by 2030. United Nations (UN). Sustainable Development Goals. See: <https://www.un.org/sustainabledevelopment/sustainable-development-goals/> (Consulted 23-01-2019).

¹⁸ Origame S. et. al. Governance for the Circular Economy (2018). Discussion paper on behalf of the C&A Foundation. p. 14.

For such purposes, areas of particular relevance include: reuse of water and treatment of wastewater; generation of renewable energy; selection and use of materials (safe, biodegradable, dismantlable, and/or durable); diverse options for garment making (avoid plastified materials and create processes which ensure that synthetic fibers are kept in closed cycles), and transport for sale of products and services (neutralize the carbon footprint),¹⁹ in addition to innovating in substitution of synthetic fibers.

The transition to a circular economy requires gradually transforming all links in value chains, from design of clothing and textiles through new business and market models, passing through maximization of inputs, patterns of consumption, and integral waste management. It is an approach which should *create models which reverse the environmental damage caused to date by the sector's activities.*²⁰

However, in conversations with various strategic stakeholders, it was common to find scant knowledge on the subject of circular economy or confusing the concept with integral waste management, and in the case of the fashion sector, it was limited to the trade in second-hand clothing (vintage stores).

For this reason, to promote a transition to a circular economy in the apparel industry, it is necessary to identify the general features of the concept and its component elements, without this proposing to offer an exhaustive theoretical discussion.

¹⁹ C&A Foundation. (2018). Circular Fashion. See: <https://www.candafoundation.org/impact/circular-fashion> (Consulted 12-22-18)

²⁰ Interview with Adrian Velasco of the Futuro Circular initiative, conducted February 27, 2019.

Continuity of the economy



A circular model cannot abruptly break from today's predominant linear economy; therefore, it is essential to achieve a continuity in the production of goods and services which facilitates the change from a *linear* paradigm of the economy to a *circular* paradigm. In this context and to facilitate the orientation of the apparel industry, the legal and political framework should promote the following aspects:



Eco-efficiency

Recognizing that natural resources are also a firm's financial resources helps to minimize consumption of water and energy, and even dependence on non-durable and/or imported materials. Thus, businesses can achieve better performance, generate savings, and boost profit margins, which increases their competitive advantage.



Value chains

Strengthen the different stages of the product lifecycle, to wit design and production, distribution, consumption, reuse, and integral waste management. Each production process in turn is made up by various sub-processes with different value chains, all of which must be strengthened in terms of eco-efficiency to achieve full circularity.



Wellbeing and wealth

Generate economic benefits for investors, but also guaranteeing quality jobs, with social security, working conditions and compensation which provide guarantee the people involved at all levels of the value chain a better quality of life.

Eco-systemic vision



The circular economy maintains an eco-systemic vision in relation to rules, procedures, decision-making, and programmatic actions. Understanding the planet and its dynamics from a systems-based perspective facilitates continuous and sustainable improvement,²¹ based on the following elements:

Natural capital²²

Redefine the concept of value from a broader perspective, where ecosystems and their environmental services produce wealth and reduce environmental impact. Resilient businesses capable of adapting to new climatic conditions have a strategic comparative advantage.

Integral waste management

Promote the use of biodegradable materials and durable products, and where appropriate simple separation or disassembly to reincorporate sub-components in a new production cycle. Also, prioritize reuse, reduction, and recycling of elements, and only when necessary opt for final disposal or waste-to-energy incineration of products if strictly necessary.

Constant evolution

Apply systems oriented toward constant improvement of the business and ongoing advancement in sustainable use of materials and technology. This also involves creation or insertion in markets (last stages of the chain) which appreciate and/or demand garments with sustainable principles.



²¹ Various ecosystem ecologists studied nature as if it were made up by closed loops of energy flows, whose dynamic could be described and anticipated to a certain point if enough of their components were known. Many believed that the stability and health of ecosystems was biologically determined by the extent to which such flows and cycles remained intact. (International Union for Conservation of Nature (IUCN) (2016). El inicio del enfoque de ecosistemas. Planta en la encrucijada. See: <https://2016congress.iucn.org/es/news/20160627/article/el-inicio-del-enfoque-de-ecosistemas.html>). (Consulted 12-22-2018)

²² The concept of natural capital is understood as the set of ecosystems, both natural and managed by mankind, which produce goods and services, and can be perpetuated, either on their own or by human management. (Sarukhan J. *et al.* (2017). Capital natural de México. Síntesis: evaluación del conocimiento y tendencias de cambio, perspectivas de sustentabilidad, capacidades humanas e institucionales. National Commission for the Knowledge and Use of Biodiversity, Mexico, p. 11. See: https://www.biodiversidad.gob.mx/pais/pdf/CapNatMex/Sintesis_CNM_2017.pdf).

A woman with dark hair tied in a bun, wearing a red shirt, is focused on operating a white industrial sewing machine. The machine is positioned on a white table, and she is working on a piece of dark fabric. The background is a brightly lit factory floor with other workers and sewing machines visible, though out of focus. The text "Good governance" is overlaid in the upper right quadrant of the image.

**Good
governance**

Interactions and agreements between governors and the governed to produce benefits and solve problems, and to construct institutions and rules which work effectively, are necessary for the transition to a circular economy. The main tools which good governance for a circular economy in the textile industry should promote are:

Human rights

Respect the guarantees, benefits, and prerogatives to which every person is entitled by law and by the mere fact of being in Mexican territory, including labor rights (decent working conditions, benefits, and holidays), and the rights to health and a healthy environment.

Transparency and access to information

Provide information on from where inputs come and what impact waste causes. Create models to exchange information on materials and products to measure socio-environmental impact (for example, environmental footprint and carbon footprint).

Eco-labeling

Promote labeling which provides information on the environmental impact of producing or discarding the product, which is customarily represented with symbols. The impact of eco-labeling may result in substantial changes in patterns of consumption, in other words in demand for goods or products.

Economic incentives + command and control

Combine both types of instrument to apply the principle: *whoever pollutes pays and whoever conserves benefits*, which is a cornerstone of Environmental Law and seeks to eliminate the economic causes of pollution and apply a sustainable logic in distributive policy.²³

Tax system

Establish a tax system based on efficient use of resources and environmental impact is key to achieving a circular economy. Establishing different rates for the value-added tax (VAT) or expanding the catalog of cases where the Special Tax on Production and Services (Spanish acronym IEPS) applies may be the difference between choosing one product or service over another.

Social involvement

Apply mechanisms and develop projects for social controllership or oversight, where society itself gathers information and participates in decision-making and monitoring the performance of both government and business, to act as a check to help ensure observance of labor rights and environmental laws, and the actions and interventions of authorities and private actors.

Innovation

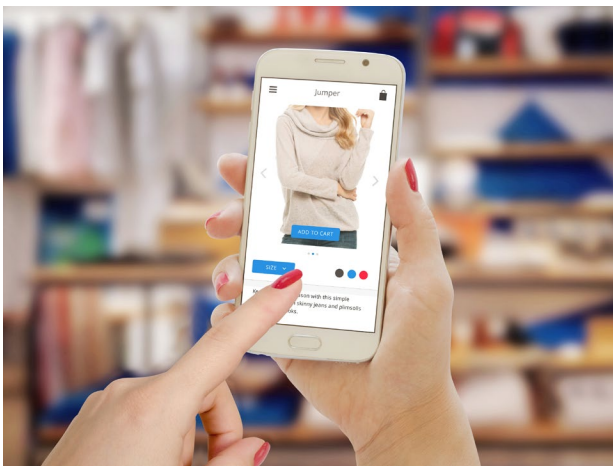


The creation of new business models, emerging markets, science and technology are keys to achieving a circular economy in the apparel industry. In this context, the legal framework should facilitate the development of:



Innovative business models

Provide access to a service as a product in its own right with vast potential, taking advantage of the window of opportunity offered by markets for sub-products, second-hand (vintage) stores, and materials banks, among others.



Smart markets

Create networks and applications which facilitate commerce in products and sub-products, considering that technological advances, social networks, and electronic media are changing patterns of consumption in contemporary society.



Science and technology

Promote the development of new technologies and scientific knowledge. Today, we have the capability to connect millions of people with mobile devices and almost unlimited access to information. This allows innovative business opportunities to multiply thanks to technological advances such as nanotechnology, biotechnology, materials science, and energy storage, among others.



**Transition
from consumer
to user**

One of the most important features of the circular economy is that it strives to focus on providing a given service to customers who are users, instead of offering consumers a product; thus, companies need to recover materials and waste when the customer has finished using them. Therefore, the circular economy seeks to create conditions where sustainability is assured through service; thus, the user/customer need not be concerned for social or environmental impact (externalities). To achieve such a change, the legal and policy framework should promote:



Conscious consumption

Offer customers information to help them choose and raise consumers' awareness of their power to transform patterns of production by freely choosing to acquire a product, access a given service, and even boycott certain products. Consumers, especially youth, are increasingly tending to choose products offered by companies with a good environmental reputation.



Cultural change

Focus on access to a service more than ownership of a good or product. Leasing is a good legal tool for this purpose. Clothing and diverse styles in fashion are an important expression of individuality in today's culture, and achieving a cultural change is a challenge for the circular economy. However, the rate of technological and scientific progress in the last 40 years has produced a social dynamic accustomed to change which should be harnessed.

In the next chapter, we explain the Mexican apparel industry, its economic relevance, and the most relevant aspects of the transition to a circular economy.



3. Transition to a circular economy in the Mexican apparel industry

The Mexican apparel industry consists of approximately 20,000 companies, 90% of which are small and medium-size companies (Spanish acronym PYMES), which create around a million direct and indirect jobs. In the year 2014, the apparel industry produced 10% of Mexico's Gross Domestic Product (GDP) in the manufacturing sector, in other words 10% of economic activities which transform raw materials into consumer goods.²⁴

Given that, depending on the source, different terms are used to refer to the sector of interest, such as: fashion and garment-making, clothing and footwear industry, textile sector, and garment industry, among others, we wish to clarify that, for the purposes of this study, as used herein, apparel industry comprises: design, make-up, production, and sale of fibers (natural and synthetic) and fabrics (woven and knit), as well as clothing, footwear, and accessories like bags and hats

In general terms, the value chain of the apparel industry is made up by the following interrelated links:

- a) Production of fibers** (subsector related to the livestock, agriculture, chemical, and petrochemical sectors);
- b) Spinning** (process of converting fibers into threads) and weaving (conversion of threads into fabrics);
- c) Dyeing and finishing** (process of dyeing and finishing threads or fabrics);
- d) Make-up** (fabrication of garments and other textile products made from the above);
- e) High fashion** (fabrication of luxury items, in smaller quantities, with high added value and profit margins);
- f) Nonwoven fabrics** (textiles which go from fiber to fabric without passing through a spinning and/or weaving process).

In summary, this value chain consists of production or acquisition of raw materials and inputs (natural or synthetic) which feeds the fabrication of textiles, which in turn feeds the fabrication of fabric and clothing, in addition to other fashion accessories such as bags, belts, and shoes.

²⁴ Gobierno fácil (2014-2019). Plataforma of the fashion industry. ProMexico. See: <http://gobiernofacil.com/proyectos/plataforma-promexico> (Consulted 12-26-2018).

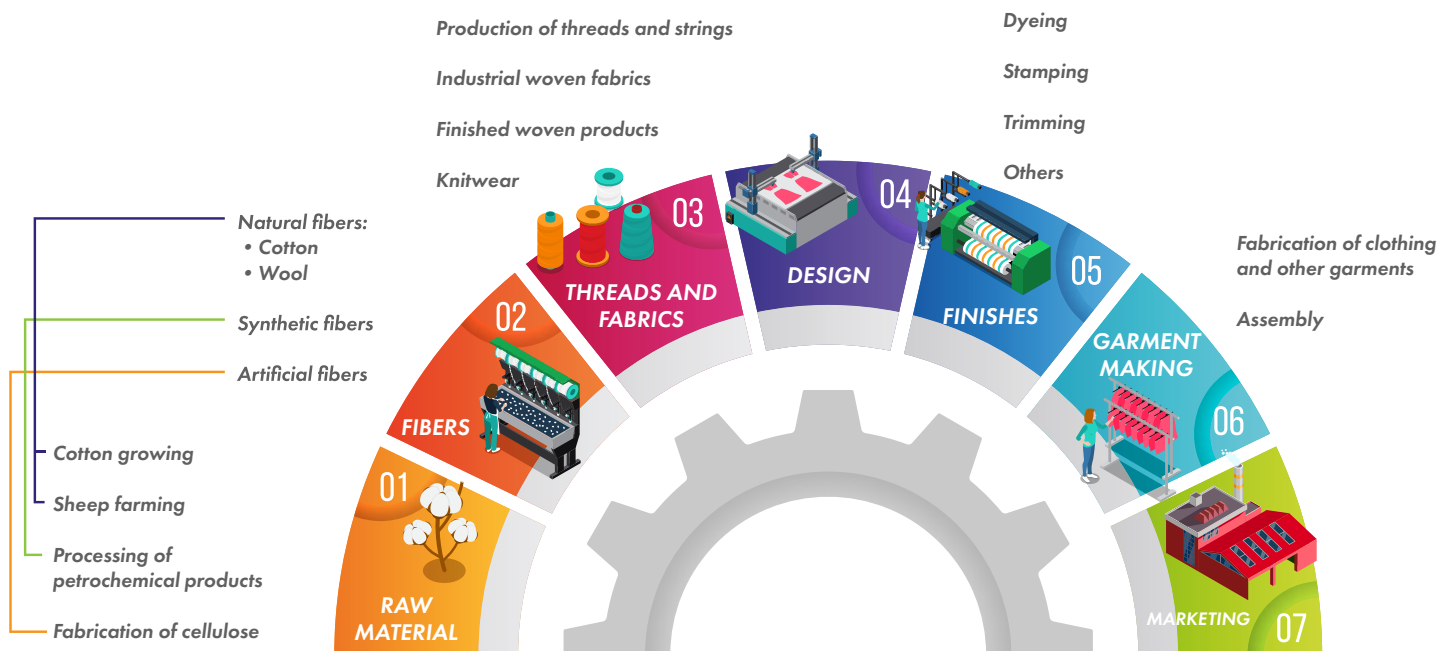


Image 2: Value Chain, Mexican Apparel Industry.
Source: Own elaboration.

Mexico's geographic position makes it the bridge between North America, Central America, and the Caribbean. Signing trade agreements and treaties with countries in both (sic) regions has favored the establishment and growth of companies devoted to manufacture of textiles, clothing, and footwear. In the nineteen-nineties, the Mexican apparel industry was favored by the easing of trade restrictions and benefited from advantageous tariff provisions, especially those in the North American Free Trade Agreement (NAFTA). It bears mention that the apparel industry is closely linked to various productive sectors, including the automobile, aeronautic, and furniture industries, among others.

Since the year 2000, the apparel industry has faced growing competition from Asian countries; notwithstanding, from 2007 to 2015, the nations of the Trans-Pacific Partnership (TPP) channeled USD 410.5 million in direct investment to the Mexican textile industry.²⁵

It is also relevant that Mexico has a population of nearly 120 million inhabitants, of which the 12 to 29 year age group constitutes 31.4%. Practically half are women and the other half men (50.6% and 49.4% respectively).²⁶ This is relevant because young people are the most important consumer segment for the apparel industry, both in Mexico and worldwide.

²⁵ Textile industry. See: <http://otech.uaeh.edu.mx/assets/ind22.pdf> (Consulted 02-19-2019).

²⁶ ¿Cuántos jóvenes hay en México? Gob.mx. See: <https://www.gob.mx/gobmx/articulos/cuantos-jovenes-hay-en-mexico>

In the year 2010, the sector generated USD 6.2655 billion and based on economic census data from the same year, its production accounted for 0.7% of the GDP.²⁷ Data from the INEGI Domestic Accounting System indicates that from 2003 to 2017 the sector has remained relatively stable and gas generated more than 120 million pesos annually, trending slightly upward since 2012.²⁸

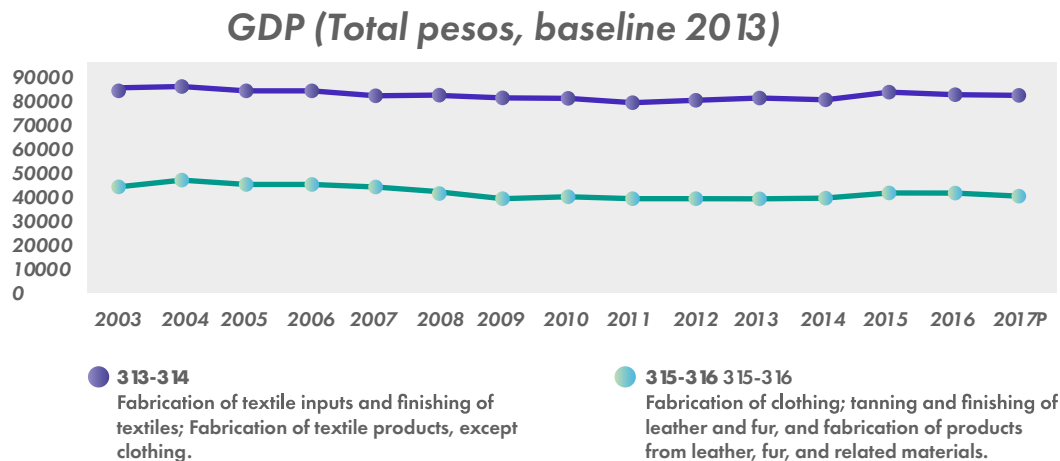


Table 1. Apparel industry production in Mexico 2003-2017
 Source: Own elaboration with data from INEGI. Mexican Domestic Accounting System. Gross Domestic Product by State. Baseline Year 2013. Series 2003 to 2017. 2017 preliminary.

Description	2012	2013	2014	2015	2016 ^R	2017 ^P
Millions of pesos						
B.1bP - Gross Domestic Product	16 059 724	16 277 187	16 733 655	17 283 856	17 788 824	18 157 002
313-314						
Fabrication of textile inputs and finishing of textiles; Fabrication of textile products, except garments	38 476	37 914	38 163	40 330	40 593	38 798
315-316						
Fabrication of garments; tanning and finishing of hide and leather, and fabrication of products from hide, leather, and related materials	79 135	80 878	80 594	83 389	82 234	82 228

Table 2. Apparel Industry Production in Mexico 2012-2017
 Source: Own elaboration with data from INEGI. Mexican Domestic Accounting System. Gross Domestic Product by State. Baseline Year 2013. Series 2003 to 2017. 2017 preliminary.

27 IUCN (2016). Op.Cit. See: <https://2016congress.iucn.org/es/news/20160627/article/el-inicio-del-enfoque-de-ecosistemas.html> (Consulted 12-22-2018)

28 National Institute of Statistics and Geography (INEGI 2018). Sistema de Cuentas Nacionales de México Fuentes y Metodologías. Baseline year 2013. Sistema de Cuentas Nacionales de México Fuentes y Metodologías. Baseline year 2013. Mexico. See: https://www.inegi.org.mx/contenidos/programas/pibact/2013/metodologias/METODOLOGIA_CBYSB2013.pdf (Consulted 02-17-19).

The Mexican apparel industry is characterized by concentrating companies devoted to production of synthetic fibers, garments, footwear, bath accessories, and fabrics.²⁹ In terms of exports, 60% of the nation's exports are sent to the United States of America (USA), as materials (fabrics, threads, etc.), pieces sent from other countries for assembly in Mexico, or as finished products.

Mexico's second largest market is Central America, which receives 22% of its exports, and the remaining 18% are sent to countries outside the continent. On the other hand, for some years in Mexico the volume of imports in the sector exceeds that of exports. The majority of such imports come from China and the USA, but there is an increasing quantity of products in the market from Asian countries, with lower priced, but inferior quality, products.³⁰

Domestically, of 100% of the apparel industry's total production, 73.5% is in manufacture and the other 26.5% in commerce.³¹

Manufactures	Commerce
Clothing 42.1%	Retail clothing, fashion jewelry, and fashion accessories 53.2%
Leather and footwear 28.7%	Retail footwear 21.4%
Textiles 27.9%	Wholesale textile products and footwear 16.6%
Jewelry 1.3%	Retail jewelry and watches 6.9%
	Wholesale jewelry and watches 1.9%

Table 3: Breakdown of the Apparel Industry.
 Source: Own elaboration with data from Statistics on the apparel, footwear, and jewelry industry 2018.

In the fashion sector, manufacturing companies create more jobs than those in commerce, and the large majority in both sectors are micro-businesses. The table below lists the most important commercial relationships of the leading fashion manufacturing industries:

29 Iberocondor. (2018). La industria textil en México. México. Transportes internacionales y Aduanas. See: <https://ibercondor.com/blog/la-industria-textil-mexico/> (Consulted 02-19-2019).

30 *Ibidem*.

31 National Institute of Statistics and Geography (2018). Estadísticas a propósito de ... la Industria de la moda del vestido, el calzado y la joyería. Mexico. See: http://internet.contenidos.inegi.org.mx/contenidos/Productos/prod_serv/contenidos/espanol/bvinegi/productos/estudios/economico/a_proposi_de/EstModaCalzaJoyeria_18.pdf (Consulted 12-26-2018)

Primary Inputs (Domestic and imported)	Primary clients
Fabrication of fabrics.	Make-up of garments.
Preparation and spinning of textile fibers, and fabrication of threads.	Fabrication of parts for motor vehicles.
Finishing of textile products and fabrication of coated fabrics.	Fabrication of knitwear.
Tanning and finishing of hide and leather.	Fabrication of footwear
Fabrication of synthetic resins and rubbers, and chemical fibers.	Fabrication of fabrics.
Fabrication of knitwear.	Fabrication of cardboard and paper products.
Imports.	Fabrication of carpets, whites, and similar items.
	Private consumption.
	Exports.

Table 4. Fashion manufacturing industry.
Source: Own elaboration with data from Statistics on the apparel, footwear, and jewelry industry 2018.

The apparel industry has a rich tradition in several regions of the country, having transitioned from a pre-Hispanic manual activity to today's automated processes and technologies. It is crucially important to consider that apparel industry is Mexico's largest employer of female labor, with women accounting for 67.9% of the workforce in commerce, 49.4% in manufacturing, and 58.1% in industry.³²

The topic is of no small relevance, given that health problems can affect not only people who work in the industry directly, but also their communities and families, especially in the case of pregnant women. For example, studies by the Institute of Engineering and the Department of Genome Medicine and Environmental Toxicology, at the National University's (UNAM) Institute of Biomedical Research (IIBm), conducted with inhabitants of the agricultural and industrial area of San Martin Texmelucan, Puebla, identified serious diseases (such as hemolytic anemia and kidney failure) caused by industrial pollutants dumped into the Atoyac River by industries operating in the region over more than 20 years. For several years now, pollution in the region has diversified with effluents from the textile industry and dumping of dyes (indigo, sodium hypochlorite) in the river water.³³

A large part of the problem has its origins in the lack of observance and effective enforcement of the law. The study conducted by the Inter-American Association for Sanitary and Environmental Engineering to link the quality of water in the Atoyac River, in the state of Puebla and compliance with regulations in force provides unequivocal information based on 23 industrial effluents tested, 17 (46%) of which were from the apparel industry. Of

32 INEGI (2018). Estadísticas a propósito de ... la Industria de la moda del vestido, el calzado y la joyería. Mexico. P. 11. See: http://internet.contenidos.inegi.org.mx/contenidos/Productos/prod_serv/contenidos/espanol/bvinegi/productos/estudios/economico/a_proposi_de/EstModaCalzaJoyeria_18.pdf (Consulted 02-18-19).

33 La Contaminación en el Río Atoyac, Problema Ecológico y Sanitario (2012). Mexico. Boletín UNAM-DGCS-507. See: http://www.dgcs.unam.mx/boletin/bdbole-tin/2012_507.html (Consulted 01-23-2019).

the effluents tested, 78% did not meet the specifications established in the norm and 74% presented levels ranging from toxic to highly toxic.³⁴

Like others, the Mexican apparel industry has not been immune from the process of globalization and opening of markets, a phenomenon which has forced many companies to transform in both their technologies and in textile design, in response to new global fashion trends and the demands of the relevant industries and sectors. Based on the report published by Greenpeace's Detox campaign, 3 several of the world's leading fashion brands represent 15% of the global industry and are making considerable efforts to eliminate hazardous chemicals from their production chains; also, with the publication of the Fashion for Climate Action Charter (in COP-26 on Climate Change), more than 45 fashion brands, including: Adidas, Burberry, Esprit, Guess, Gap Inc. Hugo Boss, H&M Group, Inditex, Kering, Levi Strauss & Co., Puma SE, PVH Corp., and Target, signed an agreement to combat climate change and established as goals: (i) to reduce their [greenhouse gas] emissions to zero by 2050 through decarbonization of production, (ii) selection of sustainable materials, (iii) low-emissions transport, and (iv) consumer awareness building.

Although there is a tendency toward a circular economy in the apparel industry, mainly in some European countries, and some brands have made a commitment to responsible and sustainable practices, in Mexico most initiatives are still in the process of consolidation.

For this project, we prepared a mapping of the actors in the apparel industry who are most relevant in promoting the circular economy in Mexico (see Annex 1). We also conducted interviews, in which the common denominator was limited knowledge of, but intense interest in, the model of a circular economy. For example, owners of vintage stores in Mexico City apply and promote aspects of the circular economy, but in an isolated and intuitive form. *"We opened the store as a business, but we did not know about the circular economy,"* affirms one vintage store owner.

In relation to the legal dimension, it bears mentioning that some people heard about problems and closings of vintage stores some years ago, due to an apparent legal ban on selling used clothing.³⁵ However, in our interviews, no one could offer greater details, and our investigation has found no evidence of such a ban.

To promote the transition to a circular economy in the apparel industry, a large number of laws are relevant, given the need to address issues such as: the use of fuels and energy, production of raw materials (cotton, natural and/or synthetic fibers), use of hazardous substances and generation of waste and plastic microfibers (polyester and nylon) dumped in the ocean, consumption of water and wastewater discharges, and greenhouse gas (GG) emissions. In addition to these issues, we need to consider respect for and observance of labor rights and safe and decent working conditions.

In the next chapter, we identify specific laws and the main regulated factors related to the apparel industry's transition to a circular economy in Mexico.

34 Saldana Fabela, P. (2006). Caracterización de fuentes puntuales de contaminación en el río Atoyac, Mexico. See: http://www.bvsde.paho.org/bvsaidis/uruguay30/MX08163_Saldana_Fabela.pdf (Consulted 01-23-2019).

35 Maria Gonzalez-Camarena, vintage clothing store owner in Mexico City (Children's clothing), explained that when she applied for a permit to open her store "They only record the brand and name; for line of business 'department store,' without making any distinction or specifying that it is a second-hand store," she remarked in the interview on October 22, 2018.





4. Applicable legal framework



A country's system of government has the function of guaranteeing the human rights of individuals and groups, orienting the national development, and assuring the proper functioning of its institutions. By designing and enacting legislation which supports and orients public policy, government decides what, whom, and how to support so that society continues to function and grow economically, socially, and environmentally.

Below, we discuss the main legal instruments related to the aforementioned priority areas, which may help to promote the vision of a circular economy in the Mexican apparel industry.

Mexican Constitution

Purpose

Undergirds the system of rights and the country's political, economic, and government system. The Constitution stipulates that all persons enjoy the human rights it recognizes and under the terms of international treaties signed and approved (Article 1). It establishes the three branches of the Mexican state, the legislative, executive, and judicial; it also defines the federal, state, and municipal spheres of competence, as well as concurrent matters, in other words those in which both the federal government and local authorities share jurisdiction. It also indicates the form of internal government the states should adopt, based on their territorial division and their political and administrative organization, the free municipality.

Relevance for the topic

Any policy or legal reform which promotes a circular economy must be aligned with the various legal principles and bases established in the Constitution. It recognizes that any person has the right to a healthy environment for their development and wellbeing, and that the state must guarantee respect for that right, through environmental responsibility (Article 4). It also recognizes a person's right to engage in the profession, industry, trade, or occupation that best suits them, provided it is lawful (Article 5), which permits the various activities constituting the value chain of the country's apparel industry.

It establishes the state's guiding role to ensure integral and sustainable national growth, for which the policies and programs the government enacts must seek to achieve a balance between the economic, social, and environmental components (Article 25). It also regulates the nation's sovereign domain over land and water and its obligation to maintain ecological balance and preserve natural resources, for which reason a system of concessions and permits is implanted for their use and exploitation. Also, it grants the federal government authority to impose limitations and modalities on private property, provided it is for reasons of public interest and/or to preserve natural resources (Article 27). Such authority is the foundation for the development of the secondary legislation and policy instruments discussed below, which may provide an opportunity for the apparel industry to transition to a circular economy.

It establishes the obligations of Mexicans, in particular the obligation to contribute to public spending, in the proportional and equitable manner the law provides (Article 31), in other words, paying the taxes and government fees established by law, observing the principles of proportionality and equity enshrined in the text of the Constitution. In accordance with the principle of proportionality, official charges (taxes and government fees) should be assessed based on the economic capacity of each individual or legal entity. The principle of equity refers to the equality of persons who must pay taxes before the same tax laws.³⁶

It recognizes the international treaties signed by the president and approved by the senate, as Supreme Law of the nation (Article 133). International treaties fulfil a twofold function, on the one hand, they create specific obligations among the states party, and on the other the contribute to legislative advances on particular issues.³⁷ Clear examples of this are the United Nations Conference on Sustainable Development (UNCSD) and the United Nations Framework Convention on Climate Change (UNFCCC), instruments which have directly influenced the creation of Mexican laws like the General Law on Ecological Balance and Environmental Protection (LGEEPA) and the General Law on Climate Change (LGCC), among others.

Barrier

The constitutional principles of *proportionality and equity* provide legal certainty in fiscal aspects, but make it difficult to apply the principle “the polluter pays”³⁸ in assessing charges in favor of a circular economy or environmental protection.

Opportunity

Municipalities can coordinate, associate, and/or grant concessions for the provision of public services like drinking water; wastewater treatment and disposal; and the collection, transportation, treatment, and final disposal of waste under their jurisdiction, among others (Article 115).

It provides a firm legal foundation on which to promote the transition to a circular economy in the apparel industry: it recognizes the human rights of any person in the country, as well as the right to a healthy environment, the state’s guiding role to foster integral and sustainable development, and the nation’s sovereign domain over lands and waters in its territory.

Recommendation

(Legislative Branch)

- Amend Article 31 of the Constitution to consider socio-environmental costs as a criterion to establish Mexicans’ contributions to public spending. It bears mention here that, unlike other laws, to amend a constitutional article, it is necessary to observe a special procedure established in the Constitution itself, which requires that any amendment be passed by a qualified majority in the Congress and a majority of the state congresses.

36 Jurisprudencia, Suprema Corte de Justicia de la Nación, 389728. 275. Pleno. Séptima Época. Apéndice de 1995. Tomo I, Parte SCJN, Pág. 256. Pleno, tesis 419. Ver: <https://sjf.scjn.gob.mx/sjfsist/Documentos/Tesis/389/389728.pdf> (Consultado el 25-01-2019).

37 D.Hunter, J. Salzman, y D. Zaelke. (1988). International Environmental Law and Policy New York, U.S.A.: Foundation Press.

38 “The ‘polluter pays’ principle constitutes a true cornerstone of environmental law. Its effectiveness aims to eliminate the economic incentives to pollute, while applying the imperatives of distributive ethics” (R. Martín Mateo. Manual de Derecho Ambiental. 3ª edición. Ed. Aranzandi. Navarra, España. (2003). P. 49).

General Law on Ecological Balance and Environmental Protection (LGEEPA)

Object

Foment sustainable development and lay the foundations to guarantee every person's right to live in an environment suitable for their growth, health, and wellbeing (Article 1). It is a law regulating Article Four of the Constitution in environmental matters, and as general law establishes the powers in environmental matters of the three branches of government.

Relevance for the topic

The governments of the states and of Mexico City will be in charge of regulating systems for collection, transportation, storage, handling, treatment, and final disposal of waste requiring special management. The law also clarifies that the functioning of such systems is subject to authorization by the municipalities or the Mexico City government, as the case may be (Articles 7, 8, and 37).

The authorities should promote saving and efficient use of water and treatment and reuse of wastewater; also, the Ministry of Environment and Natural Resources (Semarnat) should establish measures to prevent pollution of national waters. The law also states that use of water in productive activities implies responsibility for treatment of effluents, to maintain the balance of ecosystems. For such purposes, the Semarnat enacts Official Mexican Standards (NOM), as required, in accordance with the pertinent provisions of this law and the National Waters Act (Articles 36 and 93).

Title Four is devoted to Environmental Protection in the areas of Prevention and Control of Pollution of the Atmosphere, Water, and Aquatic Ecosystems, Pollution of Soil, Activities Considered High Risk, and Hazardous Materials and Wastes, among others, related to the circular economy in the apparel industry (Articles 109 Bis to 145).

Industrial effluents are subject to regulation and must comply with the relevant NOMs. It is forbidden to release or infiltrate in any body or stream of water, in soil or subsoil, in sewerage or storm drains, wastewater containing pollutants without prior treatment and a permit or authorization from the proper authority (Articles 117 and 119, 120, 121, and 123).

The Registry of Emissions and Transfers of pollutants (RETC) is a national database with information on harmful substances emitted into air, water, soil, and subsoil or transferred in wastewater and/or in hazardous waste.³⁹ It is available for free public consultation and provides information on industrial establishments under federal jurisdiction which emit or transfer any of the substances listed in NOM-165-SEMARNAT-2013 (Article 109 BIS).⁴⁰

³⁹ The information recorded is public and has declarative effects; in other words, information given voluntarily by the company is assumed to be true and the only way to verify it is through an inspection by the Federal Environmental Protection Agency (Profepa) or the National Water Commission (Conagua), as the case may be.

⁴⁰ Semarnat. Registro de Emisiones y Transferencia de Contaminantes. <http://sinat.Semarnat.gob.mx/retc/index.html> (Consulted 01-28-2019).

The Unique Environmental License (LAU) applies to industrial sectors which are fixed sources under federal jurisdiction, including factories and facilities for making paints and dyes, cellulose, and treatment of hazardous waste, among others related to the apparel industry's production chain. Any factory or establishment devoted to such activities has the obligation to apply for and obtain the LAU once when it is to open, to start operations, or when it regularizes its legal status (Article 111 Bis). It is a license which seeks to coordinate environmental requisites for industrial establishments in a single process before the Semarnat in the areas of environmental impact and risk, atmospheric emissions, generation and treatment of hazardous waste, release of wastewater, and other official procedures related to national bodies of water. Oversight is implemented by means of the Annual Operating Schedule (COA).

Barrier

The RETC does not address the issue of plastic microfibers (which are detached during printing and plastification of clothing and textiles).

Although the LGEEPA indicates that production, management, and final disposal of slow-degrading waste should be subject to NOMs (issued by the Semarnat, in coordination with the Ministry of Economy), to date plans neither exist nor are known to address the issue of plastic microfibers.

Opportunity

The law establishes specific obligations on labeling and biodegradability of detergents, which is a good precedent to promote eco-labeling measures from the LGEEPA (Article 119).

It lays the legal foundation for design and application of economic instruments based on the principle "whoever pollutes pays." Economic instruments may be of three types (Articles 21 to 22 Bis):

- a)** Market, for example, the market of rights to wastewater effluents or carbon dioxide capture credits.
- b)** Financial, like shared funds or trusts for attention/prevention of pollution in the same basin.
- c)** Fiscal, both as tax exemptions for acquisition of infrastructure or taxes on production of pollutants.

It promotes the signing of cooperation and advisory agreements with state and municipal governments to improve systems for collection, treatment, and final disposal of municipal solid waste, and to identify alternatives for reuse (Articles 137 and 138). These provisions provide the legal basis to promote alliances around specialized collection of waste from clothing, textiles, and fashion items.

Recommendations

(Legislative Branch)

- Amend the LGEEPA to expand the scope of Articles 36, 37, and 119 and require the enactment of a NOM on eco-labeling in general, so that products provide information on the source of resources used, final destination, and impact on production of textiles and fashion items.

(Executive Branch)

- Design and apply instruments of environmental policy, in particular economic instruments, for example: tax deductibility for purchases of water-saving equipment and anti-pollutant filters.
- Strengthen the Unique Environmental License as an instrument for monitoring and control of the wastewater effluents regulated in NOMs.
- Enact a NOM on eco-labeling to provide information on plastic content and toxic dyes.

National Waters Act (LAN)

Objet

Regulate the exploitation, use, or appropriation of national waters, distribution and control, integral management of basins, and preservation of their quantity and quality to achieve integral sustainable development. This law regulates Article 27 of the Constitution (Article 1). Its provisions are applicable to all national waters, whether surface or groundwater, in the areas of conservation and quality control. It lays the legal foundations for the development of Mexico's water policy.

Relevance for the topic

The law provides for the sustainable use and appropriation of water by means of a system of concessions and allocations, which should indicate, among other information, the point of extraction, the required volumes of extraction and consumption, and the initial use to be made of water and the wastewaters discharge point, with conditions of quantity and quality. The deed of concession⁴¹ or allocation⁴² should also indicate works to be executed for extraction, use, and discharge, including treatment of wastewater, measures for reuse of water, and restoration, as the case may be (Article 21).

Also, to maintain consistency, with the application for concession or allocation for the exploitation, use, or appropriation of national waters, the interested party must apply for a permit to discharge wastewater and a permit to execute the required works. The applicant must also expressly state its full agreement to pay tax contributions, as well as the corresponding environmental services (Article 21).

The Semarnat issues NOMs in the area of water (Article 8), of which the following are especially relevant for the apparel industry:

- Official Mexican Standard NOM-001-SEMARNAT-1996, which establishes maximum permissible limits of pollutants in wastewater discharges in national waters and assets.⁴³
- Official Mexican Standard NOM-002-SEMARNAT-1996, which establishes maximum permissible limits of pollutants in wastewater discharges in urban or municipal sewerage systems.⁴⁴
- Official Mexican Standard NOM-003-SEMARNAT-1997, which establishes maximum permissible limits of pollutants for treated wastewater reused in services to the public.

⁴¹ Deed granted by the federal executive for the exploitation, use, or enjoyment of national waters, and their inherent public assets, to public and private individuals or legal entities, except deeds of allocation.

⁴² Deed granted by the federal executive for the exploitation, use, or enjoyment of national waters, to municipalities, states or Mexico City, for public urban or domestic water services.

The LAN makes clear that the exploitation, use, or appropriation of national waters, including groundwater, requires payment of the fees established in the Federal Law on Government Fees (LFD). These should be designed to favor management of demand, by promoting the efficient use of water and rationalization of patterns of consumption and, as necessary, inhibit activities which impose excessive demand (Article 112).

Before granting or renewing permits, including those for discharge, in addition to complying with the relevant NOMs, the interested person must present a physical, chemical, and organic analysis of waters from receiving sources at points immediately prior to the discharge. This information feeds the aforementioned RETC (Article 94 Bis).

To release wastewater effluents on a permanent or intermittent basis into national bodies of water, for example those produced in processes of textile dyeing, a permit issued by the National Water Commission (Conagua) is required. Such permits may be revoked in case of violations of the NOMs (Articles 88 and 29 Bis 4).

The Conagua must conduct inspection or oversight of wastewater effluents to verify compliance with the law, based on which appropriate sanctions may be applied (Article 95).

Individuals or legal entities who violate the law and pollute bodies of water must take responsibility for repairing or offsetting the environmental damage caused under the terms of the Federal Law of Environmental Responsibility (Article 96 Bis 1).

The LAN establishes prohibitions on dumping or depositing in receiving bodies and federal zones garbage, materials, sludge from treatment of wastewater, and other waste or residues which pollute waters of receiving bodies (Article 86 Bis 2). This provision is complemented by the Criminal Code (Article 416) which considers the same conduct a criminal offense punishable by one to nine years' imprisonment and a fine equal to three hundred to three thousand times the daily minimum wage.⁴⁶

Barrier

Effluents must comply with the parameters of NOM-001-SEMARNAT-1996, which lists eight basic pollutants (compounds and parameters), nine heavy metals, and a microbiological pollutant, but no plastic. In case of failure to fulfill these obligations, concessions or allocations may be suspended or even revoked (Articles 29 Bis 2 and 29 Bis 4).

43 Ministry of Environment and Natural Resources (2014). Official Mexican Standard, establishing maximum permissible limits for pollutants in wastewater effluents in national waters and assets. See: https://www.gob.mx/cms/uploads/attachment/file/105139/Normas_Oficiales_Mexicanas.pdf

44 Ministry of Environment and Natural Resources (2014). Official Mexican Standard NOM-002-ECOL-1996, establishing maximum permissible limits for pollutants in wastewater effluents in urban or municipal sewerage systems. See: https://www.gob.mx/cms/uploads/attachment/file/105139/Normas_Oficiales_Mexicanas.pdf

45 Ministry of Environment, Natural Resources, and Fisheries (1998). Official Mexican Standard NOM-003-ECOL-1997, establishing maximum permissible limits for pollutants in treated wastewater reused in public services. See: <https://www.profepa.gob.mx/innovaportal/file/3297/1/nom-003-semarnat-1997.pdf>

46 In accordance with Article 29 of the Federal Penal Code, a day's fine is equal to the net daily earnings of the offender at the time the crime is committed, taking into account all sources of income.

Opportunity

Concession holders are required to meet various legal requisites, such as: not exploiting, using, appropriating, or discharging volumes greater than those authorized in their deeds of concession and make efficient use of water and ensure reuse under the terms of relevant NOMs (Article 29). However, to date no NOM has been issued for such matters.

This law expressly permits transfers of the respective deeds (concessions, permits, and rights), within a watershed or aquifer, provided the functioning of hydrological systems is not affected and their carrying capacity is respected (Article 34). Thus, it opens the door to possible economic instruments like a market for rights to release effluents in the apparel industry or in a basin with problems of pollution.

It provides a legal basis to enact NOMs which establish maximum permissible limits of pollution, and requisites for efficient use and reuse of water, among other aspects (Article 8).

It provides for mandatory coordination in processing concessions for use of waters and permits for subsequent treatment and release (Article 21).

Recommendation

(Executive Branch)

- Design and apply instruments of environmental policy, in particular economic instruments, for example: market for rights to wastewater effluents and shared responsibility funds, among others.

Federal Tax Code (CFF)

Object

Regulate the obligation for individuals and legal entities to contribute to public expenses in accordance with tax laws in force. It also indicates that only by law may a contribution may be allocated for a specific public expense (Article 1).

Relevance for the topic

Defines *taxes* as the contributions established by law which individuals and legal entities who are in certain specified *de facto* or *de jure* situations must pay. Indicates that *government fees* are the established by law for use or enjoyment of assets of the Nation in the public domain, and for receiving services the state provides in its functions of public law (Article 2). Thus, it establishes the concepts which provide the legal basis for the application of fiscal measures in favor of a circular economy in the Mexican apparel industry.

Opportunity

Provides the conceptual framework and legal basis for the LFD and charges for wastewater effluents, and for future contributions established to promote the transition to a circular economy in the apparel industry.

Recommendation

(Executive Branch)

- Use the concepts defined in this code to develop economic, and in particular fiscal, instruments.

Federal Law on Government Fees (LFD)

Object

Establish the fees paid for use or enjoyment of assets of the Nation in the public domain, and for receiving services the state provides in its functions of public law. The fees this law establishes should be related to the total cost of the service, including the financial cost, except where such charges are intended to rationalize the service (Article 1).

Relevance for the topic

The law states the specific services each of the institutions of the federal government must provide and the amounts they must collect. As fees for services related to water, users must pay for each deed of allocation or concession to exploit, use, or appropriate national waters; also for each permit to release wastewater from industrial processes; for each extension or amendment; for each transfer of deeds of concession and release permits; and for each permit for the construction of water works, among other fees (Articles 192-192-C).

The Conagua is the authority authorized to verify fulfillment of obligations, including site visits and requesting information from taxpayers, joint obligors, or related third parties (Article 192-E).

Barrier

Fees are adjusted upward until the cumulative percentage increase in the National Consumer Price Index exceeds 10%, from the last adjustment (Article 1). This law lacks incentives to produce a change in persons' polluting conduct, or to ensure more efficient use of water, or to reduce the environmental impact pollution of water produces.

Recommendation

(Legislative Branch)

- Increase the burden of fees for rights to release wastewater effluents established in Articles 192-192C.

General Law for Prevention and Integral Management of Waste (LGPGIR)

Object

Guarantee every person's right to a healthy environment and foment sustainable development by prevention of production, valuation, and integral management of waste. The law also seeks to prevent pollution of sites and timely and effective remedial action. It regulates constitutional provisions on environmental protection in matters of prevention and integral management of waste in Mexican territory (Article 1).

Relevance for the topic

The law lays the foundation to apply the principles of valuation, shared responsibility, and integral waste management, under criteria of environmental, technological, economic, and social efficiency. Such principles should be considered in designing instruments, programs, and plans for environmental policy on waste management (Article 1). The principles have special relevance to promote the transition to a circular economy in general.

It classifies waste: those requiring special management, incompatible, hazardous, and urban solids. For the apparel industry, waste requiring special management (that produced in productive processes, which does not meet the conditions to be considered hazardous or urban solid waste) is of particular interest. Thus, sludge from wastewater treatment (waste requiring special management) must be subject to a management plan (Articles 19 and 31).

The Management Plan should be designed under the principles of shared responsibility and integral management; it should also consider the set of viable actions, procedures, and means and involve producers, importers, exporters, distributors, merchants, and consumers (Article 5).

Being a general law, it confers powers on the states, like promoting (with the participation of investors and representatives of the interested social sectors) the creation of infrastructure for integral management of urban solid waste, waste requiring special management, and hazardous waste; they may also regulate charges for provision of one or more services of integral management of waste requiring special management (Article 9).

The municipalities are in charge of functions of integral management of urban solid waste, which include collection, transportation, treatment, and final disposal thereof. They can also grant authorizations and concessions for one or more activities for integral waste management (Article 10). These precepts provide the legal basis to in turn grant concessions for specialized collection services (textile waste, for example).

The LGPGIR provides the legal basis to enact NOMs on matters of waste which promote eco-efficient use of resources and better integral waste management (Article 7), among others:

- Official Mexican Standard NOM-083-SEMARNAT-2003, which establishes environmental protection specifications for site selection, design, construction, operation, monitoring, closing, and complementary works of a final disposal site for urban solid waste and waste requiring special management.⁴⁷
- Official Mexican Standard NOM-098-SEMARNAT-2002, which establishes environmental protection specifications-Waste incineration, operating specifications, and limits on pollutant emissions.⁴⁸
- Official Mexican Standard NOM -161-SEMARNAT-2011, which establishes the criteria to classify special handling waste and to determine what are subject to Management Plan; the list of them, the procedure for inclusion or exclusion in this list; as well as the elements and procedures for the formulation of management plans.

⁴⁷ Ministry of Environment and Natural Resources (2004). Official Gazette of the Federation. Official Mexican Standard NOM-083-SEMARNAT-2003. See: <http://biblioteca.Semarnat.gob.mx/janium/Documentos/Ciga/agenda/PPD02/nom-083.pdf> (Consulted 12-27-2018).

⁴⁸ Ministry of Environment and Natural Resources (2004). Official Gazette of the Federation. Official Mexican Standard NOM-098-SEMARNAT-2002, Environmental protection -Incineration of waste, operating specifications and limits of emission for pollutants. See: <http://biblioteca.Semarnat.gob.mx/janium/Documentos/Ciga/agenda/PPD02/DO343.pdf> (Consulted 12-27-2018).

Opportunity

The law expressly recognize Shared Responsibility as a principle of the policy of prevention, valuation, and integral management of waste. It also states as a principle the valuation of waste for use as new inputs in productive activities (Article 2).

States and municipalities should establish programs to improve the environmental performance of productive chains involved in segregation, collection, and preparation of urban solid waste and waste requiring special management for recycling (Article 96).

It provides a clear foundation to establish mechanisms of coordination between the three branches of government and define the responsibilities of producers, importers, exporters, merchants, consumers, authorities, and service providers in integral waste management (Articles 12-14). This may facilitate the establishment of specialized waste collection systems, for the purposes of the apparel industry, for example.

It also promotes reuse⁴⁹ and recycling of products and the market for -products (Articles 1, 5, 7, 9, 15, and 80).

Recommendations

(Legislative Branch)

- Expressly regulate in the LGPGIR the producer's enhanced responsibility and transfer to manufacturers responsibility (or part of it) for products in the market and the waste they produce.
- Expressly regulate slow-degrading or nondegradable waste, including residual micro-particles and microfibers from plastic products like fabrics with plastified prints, among others. Strengthen the regulation on the use of hazardous substances.
- Regulate and promote the use of containers and centers for collection and donation of clothing and textiles.

(Executive Branch)

- Take advantage of the *National Vision toward Sustainable Management: Zero Waste*,⁵⁰ to promote selective collection of textile materials and waste for recycling under a model of circular economy.

Federal Law on Metrology and Standardization (LFMN)

Object

Regulate the General System of Units of Measurement and define fundamental concepts and aspects related to the means of measuring and quantifying (metrology). In parallel, regulate matters of standardization, certification, accreditation, and verification (Article 1).

⁴⁹ The LGPGIR uses the term *reutilización* (reutilization); however, to homologate the language with the other laws analyzed in this study, we decided to apply the term *reuso* (reuse).

⁵⁰ Martínez P. (2019). The government wants to eliminate landfills and replace them with materials banks and compost plants. *Animal Político*. Mexico. See: <https://www.animalpolitico.com/2019/02/basureros-amlo-plan-bancos-materiales-composta/?sfns=mo>

Relevance for the topic

The law unifies the procedure for creation of mandatory Official Mexican Standards (NOM) and voluntary Mexican Standards (NMx) by all federal agencies. The LFMN is essential for Mexico to transition to a circular economy, given that many technical matters, like maximum permissible limits of effluents or emissions must be regulated under this law as a complement to environmental legislation, on waste or waters (Articles 56 and 51-A).

It promotes the concurrence of the public, private, scientific, and consumer sectors in the development of and respect for normativity (Articles 2, 41, and 94), such as:

- NOM-001-SEMARNAT-1996 (wastewater effluents), above cited.⁵¹
- NOM-083-SEMARNAT-2003, environmental protection specifications for site selection, design, construction, operation, monitoring, closing, and complementary works of a final disposal site for urban solid waste and waste requiring special management.⁵²
- NOM-004-SCFI-2006, Commercial Information-Labeling of textile products, garments (amended in 2011).⁵³
- Commercial Information-Labeling of textile products, garments, their accessories, and household linens.

Opportunity

The NOMs should be revised every five years⁵⁴ (Article 51).

Recommendations

(Executive Branch)

- Update and include plastic microfibers in the list of substances that the NOMs should measure and control in wastewater effluents. Analysis of toxicity and a permissible limit for the mixture of pollutants released which affect the aquatic system should also be added.
- Support municipalities to strengthen verification (and imposition of sanctions) for violation of standards for wastewater.

General Law on Climate Change (LGCC)

Object

Guarantee the right to a healthy environment and establish the concurrence of powers of the federal government, states, and municipalities in the development and application of public policies for adaptation to climate change and mitigation of Greenhouse Gases and compounds. It regulates constitutional provisions in matters of environmental protection, sustainable development, and preservation and restoration of ecological balance (Articles 1 and 2).

⁵² Ministry of Environment and Natural Resources (2003). NOM-083-SEMARNAT-2003, Environmental protection specifications for site selection, design, construction, operation, monitoring, closing, and complementary works at a site for final disposal of urban solid waste and waste requiring special management. See: <https://www.profepa.gob.mx/innovaportal/file/1306/1/nom-083-semarnat-2003.pdf>

⁵³ Ministry of Trade and Promotion of Industry (2006). NOM-004-SCFI-2006, Commercial Information -Labeling of textile products, garments.

⁵⁴ In the year 2018, a process of revising NOM-001 was initiated; however, the process was interrupted when the new administration took office.

Relevance for the topic

Greenhouse Gas (GG) emissions are an indirect consequence of the activities of the apparel industry, mainly due to transportation of merchandise and products, but their impact is so important that it is necessary to avoid such externalities, because they are a residue and therefore a waste. Also, if we continue down the same road, the impact of the apparel industry are potentially catastrophic for the planet due to climate change.⁵⁵

The LGCC foment the transition to a sustainable, competitive, and low carbon emissions economy by promoting competitiveness, technology transfer, and support for technological development (Article 33). Thus, it seeks gradual substitution with renewable sources of energy and greater energy efficiency in all sectors of the country's economy, including fashion and textiles. It provides for the use of economic instruments in any of their modes (financial, fiscal, or market) as a means of achieving its stated objectives and goals (Article 91).

The Semarnat should progressively and gradually establish a system of trade in emissions, in a measurable, reportable, and verifiable manner, without undermining the competitiveness of the participating sectors. Participants in the system can conduct transactions with other countries and on international carbon markets. It is relevant that the economic market instruments (concessions, authorizations, licenses, and permits) which incentivize reduction of emissions are transferrable and non-taxable, meaning they cause no taxes (Articles 92, 94, and 95).

Opportunity

The law offers the possibility of participating in voluntary carbon markets, in addition to fomenting the transition to renewable energy (Articles 92, 94, and 95).

Considering the apparel industry's substantial carbon footprint, the LGCC, with the LIE, the LTE, and the Income Tax Act, may offer an opportunity for various companies and industries in the apparel sector to consider to improve infrastructure related to the generation and storage of clean, renewable electricity.

Recommendation

(Executive Branch)

- Design and apply instruments of environmental policy, in particular economic instruments, for example: a market for carbon dioxide capture credits with a clearly defined cap on emissions.

Energy Transition Act (LTE)

Object

Regulate the sustainable use of energy, and obligations in the areas of clean energy and reduction of pollutant emissions for the electrical industry, maintaining the competitiveness of the productive sectors. This law regulates Article 25 of the Constitution (Article 1).

⁵⁵ Ellen MacArthur Foundation. *Op. Cit.* p. 39

Relevance for the topic

It provides facilities to improve infrastructure and applied technology for greater eco-efficiency in energy consumption, which helps mitigate the apparel industry's carbon footprint (Articles 14, 15, 18, 28, and 37).

For a user to be considered in financing for the sustainable use of energy, it must sign a contract with an authorized supplier of electricity or distributor of natural gas (Article 57).

Opportunity

Replacement of energy inefficient equipment and devices, like improvements to buildings which consume energy, are the targets of financing for sustainable use of energy, for which an agreement must be signed between an end user and a provider of financing, which may be a commercial enterprise or a financial entity (Article 59). Such agreements establish the terms for the supplier of electricity or natural gas distributor to provide the service of collections from end users.

Recommendation

(Small and medium-size companies (PYMES) and large companies)

- Use Article 59 of the Energy Transition Act to fund the replacement of energy inefficient equipment and devices and achieve sustainable use of energy.

Electrical Industry Act (LIE)

Object

Regulate the National Electrical System, the Public Electricity Transmission and Distribution Service, and other activities of the electrical industry. This law seeks to promote the sustainable development of the electrical industry and guarantee its continuing, efficient, and safe operation for the benefit of users, and fulfilment of obligations relating to public and universal service, clean energies, and reduction of pollutant emissions (Article 1).

Relevance for the topic

The state retains ownership of the electrical system and public service, but at the same time can sign contracts with private persons under the terms of the law. Generating companies⁵⁶ which hold one or more permits to produce electricity must sign interconnection contracts with the Energy Regulating Commission (CRE) (Article 18).

Companies which sign such contracts may engage in marketing of energy day-to-day with their surplus energy. Depending on the conditions and characteristics of each company and factory in the apparel industry, it is advisable to analyze the convenience of participating in the marketing of energy which may help reduce GG emissions in the sector (Article 19).

Installations and equipment which generate electricity (Power Plants) destined exclusively for their own use in emergencies or outages in the power supply do not require permits, but if their capacity is 0.5 MW or more they require a permit granted by the CRE to generate electricity in Mexico (Article 17).

⁵⁶ A generator is a permittee who has power plants which generate more than 0.5 MW. Generators participate directly in the Wholesale Electric Market, where they sell their electricity day by day.

Opportunity

The LIE provides economic incentives and facilities to participate in the market by generating renewable energy (Articles 17-19), which may also help to mitigate the apparel industry's carbon footprint.

The interconnection contract allows the signatory to connect to a renewable energy system and also to the public service grid, so that electricity is received from two sources. The Federal Electricity Commission (CFE) will charge only the difference between the energy delivered by the power plant and that consumed from the CFE grid.

Recommendation

(Small and medium-size companies (PYMES) and large companies)

- Consider the possibility that installations and equipment be used for self-supply of clean energy, in accordance with Article 17 of the Electrical Industry Act, or interconnection contracts are signed with the Energy Regulating Commission to engage in day-to-day marketing activities with their surplus, in accordance with Article 19 of that law.

Income Tax Act (LISR)

Object

Establish fiscal rights and obligations, and procedures for calculation and payment of income tax (ISR) (Article 1).

Relevance for the topic

ISR is a tax paid on income generated by business activity or fees for providing an independent personal service and that derived from sales of goods or moveable property in Mexico (Article 1). In this case, companies, factories, and small businesses in the apparel industry pay taxes for creating wealth and benefits, which ultimately constitutes a disincentive for economic growth.

This law stipulates that a 30% tax credit may be claimed against income tax incurred for expenditures and investments in technological research and development, provided they are made in Mexico and adhere to the general rules published by the Interinstitutional Committee⁵⁷ (Article 202). Under that article, technological research and development necessary to transition to a circular economy in the apparel industry may be benefited.

Barrier

This law does not consider preferential treatment or deductions for non-polluting equipment and/or recycling of water, which does not incentivize a particularly significant change to transition to a circular economy in the Mexican apparel industry.

⁵⁷ The Interinstitutional Committee is made up by a representative of the National Council for Science and Technology; one from the Ministry of Economy; one from the Office of the President, responsible for issues of science and technology; one from the Tax Administration Service; and one from the Ministry of Finance and Public Credit, who will chair the Interinstitutional Committee and have deciding vote.

Opportunity

Authorized deductions for fixed assets are 100% in the case of machinery and equipment for generation of power obtained from renewable sources or efficient electrical cogeneration systems, provided such machinery and equipment is operational or functioning for a minimum of five years immediately thereafter (Article 34).

Recommendations

(Legislative Branch)

- Amend Article 34 and permit deductibility of the tax on acquisition of specialized equipment to: reduce the use of toxic substances (dyes) and consumption of water and increase recycling and treatment of wastewater (filter plastic microfibers).

(Small and medium-size companies (PYMES) and large companies)

- Take advantage of LISR Article 34 which permits 100% deductions for fixed assets and equipment for generation of renewable energy or efficient electrical cogeneration systems.

Law on Science and Technology

Object

Establish mechanisms for support and coordination in the federal government in the areas of scientific and technological development and innovation (Article 1).

Relevance for the topic

The federal government has a series of instruments to support scientific research, technological development, and innovation, like implementing a special program; creating tax incentives; and channeling resources to federal agencies and public institutions of higher education for research, in particular to link scientific and technological education with the productive and service sectors (Article 13). In this context, the issue of the circular economy and development of associated science and technology should be of special interest for the National Council on Science and Technology (Conacyt).

Barrier

The Conacyt has been weakened constantly and seen its budget reduced drastically in recent years.

Opportunity

The Conacyt is responsible for designing the Special Program for Science, Technology, and Innovation, based on the proposals presented by the agencies and entities of the federal government (Article 21). Linking scientific research to improvement of productive processes in the apparel industry, in a way that facilitates greater eco-efficiency and reduction of environmental impact may be a window of opportunity.

Recommendation

(Executive Branch)

- In accordance with Article 21 of this law, promote Conacyt formulating policies and supporting scientific research considering up-to-date proposals like the transition to a circular economy which facilitate both continuity in economic growth and addressing the environmental crisis.

Federal Civil Code (CCF)

Object

Regulate private relations of individuals and legal entities, and a series of contracts to create, modify, transfer, or extinguish the rights and obligations of persons and their property. The code covers sale agreements, leases, pledges, and donations, among others.

Relevance for the topic

The legal foundations of the lease provide broad latitude to establish its characteristics and conditions (Articles 2398 to 241). In the transition to a circular economy, the legal figure of leasing may be key. Thus, the lessor transfers the right to use an asset to a lessee, in exchange for rent over a specified term, at the end of which the lessee has the option to purchase the asset, return it, or renew the lease.

Opportunity

The law provides a broad margin of maneuver to establish modes of leasing, and if applicable purchase, of suitable infrastructure for collection of waste from textiles and fashion items, among many other options (Article 2398).

Recommendation

(Small and medium-size companies (PYMES) and municipalities)

- Institutions which have a limited budget may explore this kind of options to gain access to suitable infrastructure for collection and specialized separation of waste, among other aspects related to the transition to a circular economy in the Mexican apparel industry, provided they respect the procedures and obligations established in Title Two of the Law on Public Sector Acquisitions, Leasing, and Services.

General Law on Healthcare (LGS)

Object

Establish terms and modalities for access to health services and the concurrence of the federal government and the states in matters of general health. The law regulates the Constitution, in particular the right to protection of health (Article 1).

Relevance for the topic

If the Ministry of Health requires, private persons must observe measures for prevention and control of communicable diseases, which may include disinfecting clothing (Articles 134 and 139).

Barrier

The law creates no obligations related to commerce in used items, such as clothing in vintage stores, an omission which may produce uncertainty and social prejudice which discourage such businesses.

Recommendation

(Legislative Branch)

- Expressly regulate, in the General Law on Healthcare, health-related aspects for reuse of clothing, to provide greater certainty and facilitate the cultural shift from owner to user.

Customs Act (LA)

Object

Regulate the entry to and departure from Mexican territory of both merchandise and the means used to transport or conduct it, [and] customs clearance (Article 1).

Relevance for the topic

Persons who bring merchandise into Mexico or export goods are obliged to comply with this law, including owners; possessors; holders; consignees; recipients; senders; attorneys-in-fact; customs agents; customs agencies; or any other persons who intervene the introduction, extraction, custody, storage, handling, and holding of merchandise (Article 1).

Persons who import or export merchandise must fulfil a series of obligations, among them implementing inventory control systems and enrolling in the respective registry (Article 59).

Opportunity

Merchandise which is donated for cultural purposes, teaching, research, public health, or social service, which is imported by public organizations or civil society organizations authorized to receive tax-deductible donations do not pay taxes on foreign trade, provided it is part of their equity, is donated by foreign nationals, is authorized by the Tax Administration Service (SAT), and fulfil other applicable non-tariff obligations. Likewise, "scrap" (waste) donated by manufacturing companies or companies with export programs, approved by the Ministry of Economy to legal entities authorized to receive tax-deductible donations do not pay taxes on foreign trade on entering or leaving Mexican territory (Article 61).

Recommendation

(Executive Branch)

- Take advantage of the permission granted by the customs authority, contemplated in Article 59 of the Customs Act, to establish requisites for access to information on textile products, clothing, and fashion items which are imported.

(Small and medium-size companies (PYMES) and large companies)

- Take advantage of the fact that, under Article 61 of the Customs Act, no taxes apply to merchandise or "scrap" (waste) which is donated and which may be used as inputs in new circular productive processes in the Mexican apparel industry.

Federal Law on Environmental Responsibility (LFRA)

Object

Protect, preserve, and restore ecological balance, to guarantee the human right to a healthy environment for the development and wellbeing of all persons. The law regulates Article 4 of the Constitution (Article 1).

Relevance for the topic

The law regulates the responsibility resulting from damage to the environment, and reparation and compensation for such damage when they can be secured through federal legal proceedings, alternative dispute settlement mechanisms, administrative proceedings, and others applicable to crimes against the environment (Article 1).

It indicates that the Semarnat should enact standards to establish (case by case and observing the relevant law) minimum degrees of deterioration, loss, change, or contamination necessary to consider damage adverse and harmful to the environment, so that economic agents assume the cost of the environmental damage they cause (Article 7).

Opportunity

The fact that an NOM has not been issued is not an impediment, nor does it release offenders from responsibility to repair damage to the environment. Interested persons and organizations may submit proposals for NOMs to the Semarnat under the terms of the LFMN (Article 7).

The LFRA opens the door to pursue strategic litigation, for example, against the persons considered responsible for damage to the environment and to the health of 2.3 million persons in the state of Puebla, in the Atoyac River basin. Cases of strategic litigation often create precedents which serve as an incentive to implement preemptive change in other companies and prevent continued waste and pollution of natural resources like water.

Recommendation

(NGOs and civil society)

- Analyze cases of pollution of basins to assess the advisability, and if considered opportune, initiate strategic litigation.

Local legislation in 32 states

For specific companies, cases, projects, or business initiatives, it is important to consider state legislation, in particular that which states plan to put into practice, especially in relation to environment, water, and urban solid waste and waste requiring special management. There are licenses, permits, and policies which state and municipal authorities must grant or may implement, with the aim of promoting a circular economy to influence the apparel industry.

It bears recalling that, in the Mexican federal system there are concurrent powers for the three orders of government (federal, state, and municipal) in matters of ecological balance and waste management (Article 73 of the Constitution). For that reason, each of the 32 states in Mexico regulates its own system for collection, transportation, storage, handling, treatment, and final disposal of solid and industrial waste which is not considered hazardous (LGEEPA Article 7), as we have remarked previously.

The states have the authority to formulate state policy and implement programs in the area of waste requiring special management and authorize integral management thereof, in addition to promoting research and technologies which eliminate or minimize pollutants resulting from integral waste management under their jurisdiction. Also, they have authority to regulate and establish terms to collect fees for the provision of one or more such integral waste management under their jurisdiction (LGPGIR Article 9).

Municipalities, for their part, are responsible for oversight of the observance of NOMs, and may grant concessions for one or more of the activities related to integral management of urban solid waste (LGPGIR Article 10). This opens doors to create specialized services for better collection of textile waste which can be used as inputs in new garment-making processes, for example.





5. Main findings



Today there are a series of barriers in Mexico's legal and political framework which hinder -or at least fail to incentivize- eco-efficient operation throughout the apparel industry. In fact, oftentimes, due to a lack of regulation and sanctions, in practice it proves less expensive to pollute than to save or reuse inputs (material or natural resources). Also, there is a negative feedback loop between the culture of ownership, marketing in the predominant linear economy, and the existing legal framework.

In fact, practically no law or policy promotes nature-based solutions and most natural resources are not adequately protected by existing legislation. Also, physically gaining access to them is extremely simple and direct, which facilitates pollution and at the same time makes monitoring and inspection more difficult. Clear examples are carbon dioxide (CO₂) emissions and wastewater effluents (both legal and illegal) from processes of production, garment making, and dyeing.

At the same time, it is essential to consider the emergence of initiatives seeking to promote models of development more harmonious with ecosystems, like the Sustainable Development Goals; the Nationally Determined Contributions (NDCs) under the framework of the UNFCCC; the Fashion Industry Charter for Climate Action; The new Textile Economy, Fashion for Good, and the New Plastics Economy Global Commitment. These international initiatives have the potential to trigger proactive participation by apparel industry companies and industries in the carbon bonds market or other initiatives to neutralize their carbon footprint in Mexico or to prevent the creation of plastic microfibers.

Mexican legislation offers an opportunity to implement the principle of "whoever pollutes pays" and authorizes the Semarnat to design, apply, and implement economic instruments, whether market, financial, or fiscal, to incentivize the transition to more sustainable practices. In fact, there are various successful examples of purchase and sale of carbon bonds in states like Chiapas and Queretaro, among others.

It is well worth considering that the New Plastics Economy Global Commitment has had a particular impact on the legislature in Mexico; in fact, starting in February 2019, the Mexican Senate has held a series of meetings and roundtables to design a legal instrument which supports the implementation of the New Plastics Economy Global Commitment. In this exercise in open parliament, some organizations have introduced the desirability of enacting a law which promotes the transition to a circular economy in all the nation's industries and productive activities, which would directly affect the apparel industry.⁵⁸

It is also worth emphasizing that, although the government has not yet released a final version of the National Development Plan -the guiding instrument of national policy on which all public programs and government policies are based- the new federal government for 2018-2024 has released preliminary initiatives focused on a circular economy, like the previously referenced document: *National Vision Toward Sustainable*

⁵⁸ Interview with Karol Hernandez, Coordinator of Outreach for the organization Environmental Policy and Legislation (POLEA), conducted March 7, 2019.

Management: Zero Waste. Also, spokespersons for the Office of the President have stated that “issues like the circular economy are of special interest to the Mexican federal government in this administration,”⁵⁹ because they are crucial components in fighting poverty, a priority for the current administration.

On the other hand, use of the internet and social networks is particularly relevant, especially in the youth population. Existing legal voids to regulate markets for goods and services, and the resulting responsibilities, can be leveraged to promote the growth of new online businesses in the apparel industry.

Building on the ideas presented above, the next chapter presents targeted recommendations and a general roadmap for immediate actions to pursue.

⁵⁹ Participation by Gemma Satana, Director General of Agenda 2030, for the office of the President, in the forum General Law on Climate Change. Challenges and opportunities 7 years from its implementation, held in the Senate on April 29, 2019.





6. Recommendations and steps to take



To successfully transition to a circular economy in the apparel industry, it is vitally important to secure institutional backing and design a policy which promotes changes through diverse complementary instruments. In other words, a suitable policy should consider aligned objectives; compatible incentives and sanctions; and taxes, fines, and subsidies, among other options.

At the same time, it is necessary to create synergies which help clear a path; in this sense, the role of organized civil society, and of science and research, is fundamental. Civil society, applying pressure and demanding transparency and better performance from government and business; research, for its part, providing specialized know-how, science and technology helping to apply the philosophy of the circular economy in the day-to-day practice of businesses and companies in the apparel industry.

Some civil society organizations have stated their preference for the enactment of a law to promote the circular economy; what is needed is a single law which applies to all economic sectors and by extension to the fashion and textile industries. Such a law should establish measures for command and control, and incentives. In other words, it should regulate increased responsibility of producers, mandatory eco-labeling, eco-design and ways to avoid the use of problematic and unnecessary materials. In parallel, it should incentivize tax deductibility, creation of durable and recyclable materials, government support to promote re-design of circular business models and repair workshops, among other aspects.

It is especially relevant that, in the forum “The environment, climate change, and transverse policy in designing the National Development Plan (PND) 2019-2024,”⁶⁰ representatives of business groups observed that “the PND should expressly incorporate the principle of the circular economy.”⁶¹ In the same event, centers for interdisciplinary studies like CEIBA remarked on the need for a financing strategy to transition to a circular economy.”⁶²

In the transition to a circular economy in the apparel industry, issues of special relevance include: saving water and wastewater treatment; generation of clean energy; selection and use of materials (safe, biodegradable, removable, and/or durable); different garment making options (avoid plastification), and sale of products and services which produce a large carbon footprint.

In Annex Two we present a series of specific recommendations identified for some strategic actors which are not part of the Legislative Branch or the Executive Branch and have been identified throughout this study.

Below, we present specific recommendations for persons responsible for creating and amending laws (Legislative Branch) and for those responsible for implementing them (Executive Branch), in view of their status as the main decision-makers who can facilitate the transition to a circular economy in the apparel industry.

⁶⁰ Held Thursday, May 23, 2019, in the Congress.

⁶¹ Jose Ramon Ardavin, Executive Director of the Center for Private Sector Studies for Sustainable Development of the Business Coordinating Council.

⁶² Dr. Enrique Provencio, President of the Interdisciplinary Center for Biodiversity and Environment (CEIBA).

Priority	Instrument	Action	Person Responsible	Remark
Saving water and treatment of wastewater	Mexican Constitution.	Amend Article 31 of the Constitution.	Legislative Branch.	To consider the socio-environmental costs by calculating contributions by Mexicans. This requires a qualified majority in congress, which involves a high level of difficulty.
	Federal Law on Government Fees.	Increase the fees for wastewater effluents established in Articles 192-192C.	Legislative Branch.	To discourage water consumption and creation of effluents, applying the principle "whoever pollutes pays."
	Income Tax Act.	Expand the scope of Article 34.	Legislative Branch.	To help incentivize acquisition of specialized equipment to reduce use of toxics (dyes) [and] water consumption, and to para increase recycling and treatment of wastewater.
	New Law.	Enact a law promoting the circular economy, which also applies to the apparel industry.	Legislative Branch.	To establish, in a single legal ordinance, measures for command and control, and government incentives to promote redesign of circular business models and support for repair shops.
	NOM-001-ECOL-1996; NOM-002-ECOL-1996; y NOM-003-SEMAR-NAT-1997.	Update NOMs on wastewater.	Executive Branch.	Add plastic microfibers to the list of substances to be measured by NOMs in wastewater; analysis of toxicity and a permissible limit for content in the mix of pollutants released, which affect the aquatic system, should also be added.
		Support municipalities.	Executive Branch.	To strengthen verification (and sanctions) for noncompliance with NOMs in the area of wastewater.
		Apply environmental policy instruments.	Executive Branch.	In particular, economic instruments, for example market for rights to wastewater effluents and shared responsibility funds, among others.
		Establish a support program for small and medium-size companies (PYMEs) with circular models.	Executive Branch.	Complementary to the enactment of a law to promote the circular economy, previously suggested.
Selection, use of materials and their waste (biodegradable, removable, and/or durable)	General Law for Prevention and Integral Management of Waste.	Expressly regulate producers' enhanced responsibility.	Legislative Branch.	To transfer responsibility (or part of it) for products (textiles and fashion) they place in the market and the waste they produce to manufacturers.
		Regulate the use of containers and collection centers, and donations of clothing and textiles.	Legislative Branch.	To promote reuse and recycling of clothing, textile materials, and fashion products.
	General Law on Healthcare.	Expressly regulate health-related aspects for reuse of clothing.	Legislative Branch.	Oriented to provide greater certainty and facilitate the cultural change from owner to user.
	LAU and COA.	Strengthen the Unique Environmental License and Annual Operating Schedule.	Executive Branch.	As a key instrument for monitoring and control of wastewater effluents regulated in NOMs.
	Document: <i>Visión nacional hacia una gestión sustentable.</i>	Take advantage of the National Vision for Sustainable Management: Zero Waste. ⁶⁴	Executive Branch.	To promote selective collection of textile materials and waste for recycling under a model of a circular economy.

63 Martínez P. (2019). El gobierno quiere eliminar los basureros para sustituirlos con bancos de materiales y plantas de composta. Animal Político. México. Ver:<https://www.animalpolitico.com/2019/02/basureros-amlo-plan-bancos-materiales-composta/?sfns=mo>

Priority	Instrument	Action	Person Responsible	Remark
Selection, use of materials and their waste (biodegradable, removable, and/or durable)	Federal Civil Code.	Take advantage of leasing.	Municipalities.	To acquire suitable infrastructure for the provision of public services, such as cleaning, sewerage, and water treatment.
	Coordination and cooperation agreements.	Build public-private alliances to provide public cleaning service with circular vision.	Municipalities.	Specifically for collection of garments and textile waste, improve waste recovery and sorting processes.
Diversify garment-making options (avoid plastification)	General Law on Ecological Balance and Environmental Protection.	Amend the LGEEPA to expand the scope of Articles 36, 37, and 119.	Legislative Branch.	Require enactment of a NOM on eco-labeling in general, so that products provide information on the source of the resources used, their final destination, and the impact on the production of textiles and fashion items.
	New NOM.	Enact a NOM on eco-labeling.	Executive Branch.	To broaden the scope of the existing NOM-004-SCFI-2006, Commercial information-Labeling of textile products, and provide information on plastic content and toxic dyes.
	Export permit.	Take advantage of the official permit contemplated in Article 59 of the Customs Act.	Executive Branch.	To establish requisites for access to information on imported textile products, clothing, and fashion items.
Neutralize the carbon footprint	New Law.	Develop specific legislation for e-commerce and use of apps.	Legislative Branch.	To promote digitalization of information, foment intelligent business models and new technologies like internet applications.
	Platform www.gob.mx/tuempresa	The government should take advantage of the platform to promote companies with systemic vision.	Executive Branch.	

Road map

Because there are many recommendations and actions to take, from the perspective of social engagement, the most appropriate option is to promote a road map coordinated by a Think tank, which defines priorities based on the importance and viability of the various actions identified. Consequently, we propose the following points for the road map.

Action	Remark	Viability
STRATEGY: PROMOTE IN THE LEGISLATURE.		
Expand the scope of LGEEPA Articles 36, 37, and 119.	To implement mandatory eco-labeling of products. In February 2019 a bill was introduced to amend LGEEPA Articles 36 and 37 to regulate ecological labeling by means of a NOM.	High
Expressly regulate in the LGPGIR slow-degrading or non-degradable waste, including micro particles and residual microfibers from plastic products like fabrics with plastified printing, among others.	The issue is gaining relevance within the Legislative Branch, especially in the context of the Plastics Economy Global Commitment.	Medium-high
Regulate the producer's enhanced responsibility in the LGPGIR to transfer to manufacturers' responsibility for the products they place in the market.		
Increase fees for wastewater effluents in the LFD.	Negotiating any increase in contributions is a complex issue in the context of the new 2018-2024 federal administration.	Medium
Expand the scope of LISR Article 34 and permit deductibility of taxes on acquisition of specialized equipment to reduce pollution and consumption of water, and to increase recycling and treatment and reuse of wastewater.	In December 2018, a bill was introduced to add a transitory article to the LISR, to limit deductions until January 1, 2021. ⁶⁴	Medium-low
Enact a law to promote the circular economy, which also applies to the apparel industry.	The issue is gaining relevance in the legislature; however, it is highly complex and would involve a slow and lengthy process, lasting more than a year.	Medium

64 See: http://sil.gobernacion.gob.mx/Archivos/Documentos/2018/12/asun_3797259_20181218_1545148835.pdf (Consulted 03-25-19).

Action	Remark	Viability
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STRATEGY: PROMOTE BEFORE THE SEMARNAT.

Specialized recovery of textiles for recycling, in materials banks.	If there is institutional support, pilot projects can be initiated which generate lessons learned.	High
Creation of a NOM on eco-labeling.	Creating a NOM is a lengthy and complex process from the technical and negotiating standpoint.	High
Update NOM-001-SEMARNAT-1996 and NOM-002-SEMARNAT-1996, (to consider plastic microfibers).	The process of revision and updating a NOM is also a lengthy and complex process from the technical and negotiating standpoint.	Medium
Design economic instruments to incentivize change of polluting conduct (effluent trading market).	Despite the potential of this kind of instruments, to date there have been few experiences in Mexico. Their functioning depends largely on the effective application of the law and normativity.	Medium


Action	Remark	Viability
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STRATEGY: NEUTRALIZE THE CARBON FOOTPRINT OF LEADING COMPANIES IN THE SECTOR.

Participate in the voluntary carbon bonds market.	In Mexico there are several successful experiences with a voluntary market for carbon capture certificates. When there companies have the will to participate it is very simple to put into practice.	High
Sign shared voluntary protocols to transition to a circular economy.	When companies are willing, it is very simple action to execute. A clear example is the Plastics Economy Global Commitment.	High
Explore projects for self-supply and interconnection with the power grid.	Offers the opportunity to finance the transition to use of renewable energy which generates savings and eco-efficient performance.	Medium
Take advantage of the tax deductibility available under LISR Article 34.	Permits 100% deductions for fixed assets and equipment for generation of renewable energy or efficient cogeneration systems.	Medium



Conclusions



The situation of economic and environmental crisis in the Mexican context is an opportunity to promote the change to a circular economy in the apparel industry. In other words, demographic explosion, pressure on natural resources, unchecked production of garbage, and release of polluted water, added to growing demand for services in the country, creates an opportunity to promote a model of production and business which confronts those problems by creating better economic performance with lower environmental impact.

Based on the investigation conducted for this diagnosis, we can affirm that the transition to a circular economy in the Mexican apparel industry is not only desirable, but possible, through changes in legislation and public policy promoted jointly by the Mexican state, civil society, the scientific and business sectors, and consumers.

To accomplish this, it is necessary that the Mexican legal framework effectively protect and regulate natural (and economic) resources. However, today most of them are not sufficiently well protected by legislation.

Nevertheless, the Mexican Constitution provides a substantial legal foundation to support the transition to a circular economy in the apparel industry, with environmental legislation which offers windows of opportunity like the promotion of economic instruments for the implementation of the principle “whoever pollutes pays.” Legislation also offers the opportunity to upgrade equipment and test new schemes for generation and supply of clean energy. Also, existing legislation promotes reuse and recycling, as well as the market for sub-products, and includes legal instruments to establish permissible limits for wastewater effluents and atmospheric emissions, among other things.

Taking into consideration all the aspects discussed in this study, CEMDA is convinced that the historical moment and the socio-political context have the potential to trigger a systemic change in the Mexican economic system and legal framework. For that reason, CEMDA seeks to help advance legal reforms which improve and permit the transition to a circular economy in Mexico.

A close-up photograph of a person's hand sorting through a large pile of folded, colorful clothing. The clothes include various patterns and colors such as purple, yellow, green and white stripes, red and white stripes, and black. The hand is positioned in the center-right, reaching into the pile. The word "References" is overlaid in white, bold, sans-serif font in the upper right quadrant of the image.

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ANNEX I. Actors in the fashion [and] textile sectors for the transition to models of production based on the Circular Economy

By:
Mireille Acquart and Federico Arce, Ethical Fashion Space.

Since the start of the 21st Century, several phenomena became important for the garment-making sector. From a transition marked by the convergence of digital, physical, and biological technologies as part of the challenges resulting from the so-called fourth industrial revolution to the challenges imposed by the shift from a linear to a circular model of the economy, and consequently the transformation of this industrial sector toward sustainability.

Although trends toward patterns of sustainable, ethical, and slow production, marketing, and consumption have been present since the turn of the century, especially in Western countries, which have accelerated the process of transitioning toward a circular economy, in Mexico most initiatives are still in a process of consolidation. However, this has not been a constraint for more mature businesses, which -due to their operative capacity- have shown methodological advances toward such a model.

In the years 2016 and 2017, sustainability in the textile and fashion sector in the Latin American region, and especially in Mexico, became, if not a priority in the economic agenda, an important component, to the extent of mobilizing many stakeholders to experiment with production processes with lower environmental impact.

From natural to regenerated materials, and in the increased use of clean technologies, we find products and services which offer fibers obtained from fungi, milk (casein), and fish skin or from pineapple or agave rinds; lyocell, bamboo, regenerated materials made from polyester, cotton, nylon, or PET. Alongside the trend in materials, we have seen an acceleration in use of clean technologies, reduction of chemicals highly harmful to human health and the environment, and the importance of responsible consumption of materials and waste management, both inside and outside the industry. Finally, we

have started to consider measuring the negative effects of production cycles, emissions, and the types of materials necessary to migrate to a much more sustainable routine.

This annex identifies actors in the textile, garment-making, and fashion sectors relevant in promoting the circular economy in the fashion and textile sector in Mexico.

The methodology applied in our analysis proposes a comprehensive vision which involves the following actors and their role in the value chain of the textile, garment-making, and fashion industry:

Value chain operators

Form the private sector and are the central figures in the chain, who take risks and create economic value (distributing companies, wholesalers, small and medium-size companies, producers, etc.). These agents are noteworthy because, in the principal process of production and marketing, they are owners of the goods or services at some time, when they have the chance to add value to them.

Service providers and support

Agents who offer services to help micro-businesses and companies or provide collective goods to groups of operators in the chain, to the entire chain, or to a subsector. They may be entities in the private sector or public or semipublic organizations, such as technological chambers and institutes and organizations in the academic sector, such as research centers and universities.

Government

The government's role as an actor involves creating favorable conditions for economic and social development, with the aim of creating jobs and advancing in reducing poverty and promoting mechanisms to control the efficient functioning and stability of the market. Thus, the clearest benefits government can guarantee are, on the one hand, regularization of the legal framework which affects activities in the value chain and control its observance, and on the other support the provision of infrastructure.

Development agencies and Civil Society Organizations (SCO)

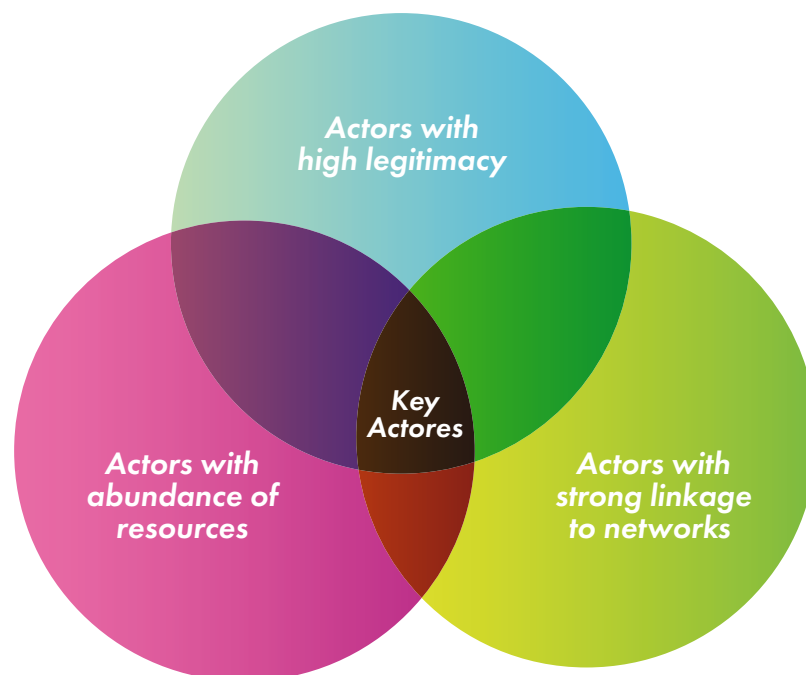
These actors should take the role of facilitators, working to promote the process in a comprehensive manner, working to promote, foment, and support the other agents in the value chain. Accordingly, SCOs and agencies should not substitute for other actors (at least not permanently), but should complement and support their work by strengthening capabilities and offering orientation for the development of projects.

Map of actors

Given the sector's complexity, the core components of this study are limited to identifying textile productive units which developing initiatives based on the circular economy in Mexico, by means of a qualitative and quantitative map, emphasizing the typing and classification of textile enterprises and their articulation, planning to implement such an approach with favorable aspects of association, communication, and networking among the different actors interested the development of the textile and circular value chain: designers, small business owners, research centers, chambers, associations, and centers of higher education.

Thus, this exercise seeks merely to offer an overview of the principal actors who are developing initiatives for the efficient use of materials [and] sustainable production and consumption, and those directly involved in the model of a circular economy in Mexico. We considered actors with potential interests to participate in the model of a circular economy who have at least a change objective or situation projected in the medium term. Their inclusion is determined by their position in relation to the circular economy or knowledge base in addition to their capacity for influence to ensure the execution of actions and a project or program.

The qualitative approach to mapping was based on three characteristics to establish the degree of influence: actors with high legitimacy, actors strongly linked in networks, and actors with high capacity to mobilize resources. The intersections of these three factors determines the map of actors in the sector and their possible influence and positioning in relation to the circular economy. Such actors include those devoted to inputs, production of fabrics, marketing, machinery and finishes, garment and textile making, industry groups, and government.



Graph 1. Definition of key actors in the Fashion and Textile Sector in Mexico Author: EthicalFashionSpace, Mexico 2019.

Map of Actors in the Mexican Fashion and textile sectors in relation to Sustainability – Rse / Circular Economy – Environmental Compliance



Map of other actors in the Mexican fashion and textile sectors in relation to Sustainability / Circular Economy.
 Author: Ethical Fashion Space, Mexico 2019

The graph shows companies, social and international organizations and their positioning on four associated criteria: environmental compliance; circular economy; philanthropy and corporate social responsibility, and sustainability. International organizations are in gray, organizations which have associated programs in orange, and last, companies which develop programs under such criteria are in blue. Likewise, the diversity of actors is related to their potential in a circular model.

As regards companies and organizations which participate directly and indirectly in the textile and fashion chain of production, we find:

- a) production and design activities;
- b) certifications, post-consumption, and materials and waste management;

- c) markets for secondary raw materials and reuse of water;
- d) organizations and institutions which support the development of the legal framework and its observance, research, innovation, and competitiveness.

Below we present our analysis to recognize the incidence and positioning of the actors presented in this study. The analysis was based on available information for each company and examined four factors which are closely related among indicators of efficiency and responsibility.

For the purposes of this study, we present only the actors considered strategic and primary in the sector based on their relevance in each category, provided they engage in activities or are considered essential to the development of the circular economy.

Criteria		
Efficiency	<p>1 CIRCULAR ECONOMY</p>	<p>Efficient use of materials. Energy and water efficiency. Closing the loop. Associated valuation chains. Innovation.</p>
	<p>2 ENVIRONMENTAL COMPLIANCE</p>	<p>Environmental management. Compliance with standards. Command and Control. Certification Processes. Auditing.</p>
Responsibility	<p>3 PHILANTHROPY AND CORPORATE SOCIAL RESPONSIBILITY</p>	<p>Altruism / Commitment. Corporate Social Objective. Recognition / Distinctive. Ethical Criteria / Voluntary. Sense of Community.</p>
	<p>4 SUSTAINABILITY</p>	<p>Triple Bottom Line Projects: social, environmental, and economic. Low impact and with the focus on long-term profits. Planning and evaluation. Indicators. Tools and Methodologies.</p>

Graph 3. Evaluation Criteria for the influence and positioning of actors in the Fashion and Textile Sector in relation to Sustainability / Circular Economy in Mexico
 Author: EthicalFashionSpace, Mexico 2019.



Annex II. Specific recommendations for the private sector

This annex presents a series of specific recommendations identified for the private sector in Mexico, including both small and medium-size companies (PYMES) and large companies; each company may consider the recommendations to the extent their capabilities permit.

Priority: generate new business models

- Start experimentation with new, service based, business models.
- Focus on business models that create asset management instead of 'stock' management (service provider keeps responsibility of value) through 'usership' for the end customer.
- Rethink design of products along the lines of the Cradle-to-Cradle guidelines (biological vs. technological: 100% and no mixed products).
- Design products together with recyclers (end of use).
- Rethink the (shared) responsibility of producers and service-providers (retail).

Priority: Generation of clean energy

- Take advantage of the leasing model to acquire infrastructure and technology for generation and use of clean energy along value chains.
- Take advantage of Article 34 of the Income Tax Act (LISR) which permits 100% deductions for fixed assets and equipment for generation of renewable energy or efficient cogeneration systems.
- Explore projects for self-supply and interconnection with the power grid to finance the transition to use of renewable energy, making use of Article 59 of the Energy Transition Act (LTE), which states that replacement of energy inefficient equipment and devices is eligible for financing for sustainable use of energy.
- Consider the possibility of using installations and equipment for self-supply of clean energy, in accordance with Article 17 of the Electrical Industry Act (LIE), or signing interconnection contracts with the Energy Regulating Commission (CRE) to conduct day-to-day marketing activities with their surplus energy, in accordance with LIE Article 19.

Priority: Selection, use of materials and their waste (safe, biodegradable, removable, and/or durable)

- Design and implement voluntary schemes of Shared Responsibility for businesses aligned with the LGPGIR.
- Promote public-private alliances and signing of coordination and cooperation agreements with state and municipal governments in relation to collection of textile waste and fashion items.
- Take advantage of the fact that, under Article 61 of the Customs Act, no taxes are incurred for “scrap” (waste) which is donated from abroad, which can be used as inputs for new productive processes in the fashion and textile sector.

Priority: Diversify garment making options (avoid plastification)

- Promote voluntary eco-labeling to identify sources of raw materials and the impact of their waste, among other information.

Priority: neutralize the carbon footprint

- Participate in the voluntary carbon bonds market with the aim of neutralizing the sector’s carbon footprint.
- Use LTE Article 59, which states that replacement of energy inefficient equipment and devices is eligible for financing for sustainable use of energy.
- Consider the possibility of using installations and equipment for self-supply of clean energy, in accordance with LIE Article 17, or signing interconnection contracts with the CRE to engage in day-to-day marketing activities with surplus energy, in accordance with LIE Article 19.

Voluntary Initiatives

In addition to the rights and obligations and policy instruments established by the various applicable laws, there is a series of initiatives which companies and businesses can assume and promote voluntarily, which may facilitate the transition to a circular economy, for example:

- Private certification.
- Cooperation agreements.
- Internal protocols.
- Voluntary commitments.
- Systems of Social Responsibility.
- Corporate Environmental Responsibility.
- Business Incubator.
- Voluntary eco-labeling.
- Leasing (financial leasing with purchase option).



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