



# Introduction to The Textile Footprint

MEASURE-REDUCE-OFFSET:  
A TRANSITIONAL MODEL TOWARDS CIRCULARITY  
FOR A HORIZON FREE OF TEXTILE WASTE

# Introduction to The Textile Footprint

**This document contains an introductory extract of the Textile Footprint methodology conceptualised and developed by T\_NEUTRAL between 2021 and 2022.** It is a theoretical reflection and methodological approach to propose the Textile Footprint as an industry-wide unit of measurement for the accounting and mapping of the textile output of any textile producer. Measuring the Textile Footprint is the first step towards reducing and, ultimately, eliminating textile waste completely.

This white paper marks the publication of the first version of the Textile Footprint protocol that proposes an initial framework for accounting and traceability mapping, which will continue to evolve through specific research projects in areas where the current state lacks sufficient information, as well as through the lessons learnt from its application by active textile producers committed to reducing the impact of their activity on the environment, and proactive in the fight for a horizon free of textile waste.

## AUTHORS

Mariana Gramunt de Azqueta, Co-founder & CEO at T\_NEUTRAL.  
Carlota Gramunt de Azqueta, Co-founder & CSO at T\_NEUTRAL.

## ISSUE DATE

22/06/2022

## ABOUT T\_NEUTRAL

T\_NEUTRAL is a purpose-driven company created by Mariana and Carlota Gramunt in Spain in 2021. It was conceived with the aim of reducing textile waste through the creation of a pioneering new measurement and traceability parameter, the "Textile Footprint". Textile producers are able use T\_NEUTRAL's technology to Measure, Reduce and Offset their Textile Footprint, connecting directly with textile waste reduction solutions through the first textile credit platform, with the aim of eliminating textile waste, achieving 100% traceability and accelerating the circular transformation of the sector through impactful innovation.



## COPYRIGHT:

This content is the property of Clean Horizon, S.L. (T\_NEUTRAL). Any information to be used in advertising, press releases, promotional materials or external publication requires prior written approval, accompanied by a draft of the proposed document. T\_NEUTRAL reserves the right to refuse approval for external use for any reason. Reproduction without written permission is strictly prohibited.



# Acknowledgments

We have been fortunate to count on the support of a number experts and entities who lent their experience and knowledge in the numerous areas in which the Textile Footprint impacts directly or indirectly, both in the elaboration of the Textile Footprint methodology and of this White Paper, in particular Global Factor for its technical advice throughout the development process.

## REVIEW AND COMMENTS BY

<b>Global Factor</b>	International group specialised in global solutions in areas such as climate change, energy, and sustainability.
<b>Jordi Sevilla</b>	State Economist. Minister for Public Administration, Spain (2004-07). Chairman of Red Electrica Group (2018-2020). President of T_NEUTRAL Advisory Board.
<b>María Artola González</b>	Pioneering Spanish environmental lawyer. Member of the Council of UN Sustainable Development Solutions Network. Member of T_NEUTRAL Advisory Board.
<b>Fernando López del Prado</b>	Global Human Rights Manager for Imperial Brands PLC. Expert in GRI impact reporting, human rights and sustainable development. Member of T_NEUTRAL Advisory Board.
<b>Nicolás Casariego</b>	Adjunct Professor, IE School of Human Science and Technology. Head of Data and Analytics at Nateevo. Member of T_NEUTRAL Advisory Board.
<b>Gema Gómez</b>	Founder of Slow Fashion Next. Cluster co-ordinator at GK Green Fashion, Gipuzkoa. Trainer at IE, IED and other private and public organisations.
<b>Tinixara Mesa</b>	Responsible for major accounts in the retail sector at ECOEMBES. Degree in biology and expert in circular economy, extended producer responsibility, sustainability and environmental control within organizations.
<b>Toni Gasa</b>	Communications expert PhD Universidad Politécnica de Madrid. Marketing and Communications Director at Value Retail. Member of T_NEUTRAL Advisory Board.
<b>Laura Blanco</b>	Senior Advisor at tQuity. Expert in marketing, business development and customer intelligence. Professor at IE School of Human Science & Technology. Secretary of the Advisory Board of T_NEUTRAL.
<b>André Silva</b>	Chief Business Officer at tQuity. Business Advisor for T_NEUTRAL. Expert in business development and digital strategy with extensive experience in management of FMCG companies and start-ups consulting.



# Industry Views

“The Textile Footprint is an initiative with great potential as it raises awareness among producers and promotes action to provide circular solutions to irresponsible production and consumption. In a sector such as the textile industry, where consumers also play an essential role in advancing towards sustainable development, this methodology takes a systemic and redundant view in order to reduce the large amount of waste generated.

From Global Factor we support to continue working, forging and polishing this initiative so that in the future it will be a useful and necessary tool to transform the current model of the sector towards a more competitive and resilient one, making responsible all actors, from producers to consumers, who are part of the textile value chain. ”

***\_Ximena Franco***  
***Head of Circular Economy, Global Factor***

“The Textile Footprint appears at a key moment in which it is vital to raise awareness in the textile sector about the need to mitigate its impact on the environment and contribute to the sustainability of our planet. This sector needs to implement the most effective solutions to address such a complex problem as the Textile Footprint and its impact on nature and the quality of life of all.

Our future is not disposable, we must act now. As Mahatma Gandhi said “be the change you want to see in the world”. That is why it is so important to support credible initiatives such as T\_NEUTRAL’s white paper on the Textile Footprint. They provide knowledge and research, and propose innovative solutions.”

***\_María Artola***  
***Counselor for the UN Sustainable Development Solutions Network***

“The step of turning a garment, traditionally destined to end up as waste, into a resource is a profoundly transformative and hopeful process. T\_NEUTRAL offers an economically smart, environmentally friendly and socially just solution. It is innovative and brings us closer to fulfilling our own responsibility as sustainable human beings. It is a perfect reflection of the many benefits of the circular economy well applied.”

***\_Fernando López del Prado***  
***Head of Human Rights, Imperial Brands PLC***

“Climate change is a fact, and it needs transformative, innovative and real initiatives that demonstrate that people, companies and institutions are capable of committing to the planet we live in. T\_NEUTRAL proposes a concrete way to act now and to produce transforming effects in the business, social and economic culture for a sustainable life and responsible society. Bravo Mariana and Carlota for being brave, daring, inspiring and for believing not only that sustainability is possible but also that it can drive prosperity.”

***\_Laura Blanco***  
***Senior Advisor, tQuity***

“We are facing an opportunity and an enormous challenge to give the necessary impulse to the proper management of used textiles. And for this, standardized measures, traceable processes and an adequate distribution of responsibilities are urgently needed. We see The Textile Footprint as a great practical tool for all actors in the value chain to assume their commitments in a realistic manner.”

***\_Rafael Mas***  
***Head of Communication & HR, Humana***



“The Textile Footprint is a good concept because when we name something we have the ability to act on it. Unlike other footprints such as carbon, water, product or corporate footprints, which are generic and can be used for any type of company, this footprint is specific to the textile sector, and I believe that this condition will help us to internalize it in a natural way in the sector.

Just as we measure CO2 emissions along the entire chain, we can measure textile outputs to be able to act on them. In addition, it helps us to have a proactive vision of this type of outputs and to put solutions in place once traceability and impacts have been achieved at each point in the value chain.”

***\_Gema Gómez***  
***Founder & CEO, Slow Fashion Next***

“The world is moving towards a new paradigm where values such as inclusion, diversity and sustainability will be predominant. The path is made by walking, which is why the role of the drivers of this change is so necessary, such as Carlota and Mariana with T\_NEUTRAL, which will undoubtedly mark a milestone in the fashion industry to transform it and take it towards a new, more conscious model.”

***\_Toni Gasa***  
***Senior PR & Comunicación Manager, Value Retail***

“At T\_NEUTRAL we have an initiative to mitigate the Textile Footprint based on three axes: measurement, reduction and offsetting. This “platform as a service” will make this possible through the use of technology, collaborative tools, protocols, data and advanced analytics.”

***\_Nicolás Casariego***  
***Associate Professor, IE School of Human Science and Technology***

“As a brand we are aware that our environmental responsibility does not end when customers buy the garment. We take into account the entire life cycle of the product also incorporating technology to give it the greatest possible use, and that it can be sent back when you want to recycle it, since the same supplier that makes our thread can recycle it to give it a new life. But we are an exception in an industry of ephemeral micro-trends that generate great waste.

That's why we believe that T\_NEUTRAL is an opportunity for change for everyone: for customers to understand the impact of their purchases, for brands to understand that it is also their responsibility that their garments do not end up incinerated or in a landfill, and for both of us to better understand the path of raw materials towards circularity.”

***\_Fede Sainz de Robles***  
***Founder & CEO, Sepiia***



# Executive Summary

The proposed methodology introduces **a pioneering model through which textile producers can measure, reduce and offset their Textile Footprint: a new and innovative measurement and traceability parameter to quantify the tons of textile resulting from a textile producer's activity**, as a first step to take concrete and effective actions for the mitigation of textile waste. It is a solution based on a joint commitment to involve all those implicated in the textile circle, while establishing the importance of textile producers taking responsibility in the path towards real circularity in the textile sector.

The EU estimates that the **textile industry is responsible for 10% of global CO2 emissions**. The “fast fashion” throwaway model generates **92 million tonnes of textile waste per year**, second only to plastic (140 million tonnes of waste). **87% of textile waste ends up in landfill or is incinerated**, as it is hardly recycled or reused. The global threat posed by textile waste is pushing for the development of regulatory frameworks that, together with the responsibility of producers who are increasingly concerned about the environmental impact of their activity, **require specific, cross-cutting and homogenising solutions**, such as the one proposed by T\_NEUTRAL.

Developed **in line with European and Spanish regulations** relating to the textile sector, it is an initiative with global and transversal ambitions for the textile sector, supported by **international consensus frameworks** on the analysis of environmental impacts. **This document marks the first version of this methodology outlining the basic notions that constitute the Textile Footprint**, in order to enable its calculation and first level of traceability. In future versions of this methodology we aim to further the traceability mapping capability, as well as refine the accuracy of the functional unit and the incorporation of mitigation practices more focused on the use of low-impact materials and techniques.

Using as a reference model other mitigation schemes for other pollutants such as Greenhouse Gases (GHG) or plastic, **we propose to start from a homogeneous and transversal metric for the textile industry that allows to quantify and trace the tons of textile emitted by a producer in a period of activity**. Starting from a homogeneous measurement, targets can be set at the sector level as well as at the individual level, to **take control of the textile outputted** by implementing textile mitigation practices, and to take responsibility for those tons over which the end-of-life control is lost through the innovative mechanism of offsetting. **Offsetting functions as a transitional tool to accelerate the elimination of existing textile waste**. It also acts as a tool to take responsibility for unavoidable textile emissions as well as a catalyst for textile waste reduction projects at the forefront of the problem, which find in offsetting a new source of financing and sustainable development.

The Textile Footprint methodology introduces concepts such as **textile output, traceability, limits of responsibility** or **textile footprint mitigation practices**, all of them indispensable elements to ensure the correct accounting of and rigour in the data, so that the resulting metrics provide **actionable data** on which to develop **long-term objectives and strategies**, as well as **effective actions in the short term**.

Finally, at T\_NEUTRAL we believe in technology not as an end but as a tool to accelerate impact. We rely on innovation and the latest technological advances to achieve the goal of mitigating and eliminating textile waste in a more efficient, fast and accessible way. To this end, we have developed a **technological infrastructure for the mitigation of the Textile Footprint**, a digital ecosystem aimed at textile producers and reduction projects through which to facilitate the Measure, Reduce (already available) and Offset (planned for 2023) model in an autonomous, enriched and connected way, to enable the development of effective action plans that drive the circular transformation of the industry towards a horizon free of textile waste.



## TABLE OF CONTENTS

### 1. Definitions and Acronyms

### 2. Introduction

2.1. Current Context

2.2. Circularity in the Textile Sector

### 3. Changing of Perspective: from Waste to Resource

### 4. Introduction to the Textile Footprint

4.1. Measure/Reduce/Offset, a transitional model towards circularity

4.2. Methodology Aligned with Consensus Standards to Reach Global Targets

4.3. System Boundaries

### 5. The Textile Footprint and its Components

5.1. The Textile Producer

5.2. Textile Outputs

5.3. Textile Footprint Mitigation Practices

5.4. Traceability

5.5. Textile Footprint Basic Metrics

### 6. Conclusion



# 1. Definitions and Acronyms

**Textile Producer:** In line with Spanish Law 7/2022 on Waste and Contaminated Soil<sup>1</sup>, a textile producer is defined as any independent organisation or person who manufactures, transforms, handles or markets textile goods in a professional capacity. Throughout this document, textile producer and producer will be used interchangeably.

**Textile Goods:** following Spanish law 928/1987 of 5 June 1987 concerning the labelling of the composition of textile products<sup>2</sup>, textile goods are considered to be those which in their raw, processed, semi-manufactured, manufactured, or made-up state, are either composed exclusively of textile fibres or those whose weight is made up of at least 80% of textile fibres and textile products incorporated into other products, where the composition of the latter is specified. Throughout this document, textile good, textile product and textile material will be used interchangeably.

**Textile Output:** the amount of textile resulting from the activity of a textile producer measured in metric tonnes, including usable textile (in suitable condition for continuing the main value chain. For example, a final marketed garment) and discarded textile (in unsuitable conditions for continuing the main value chain. e.g. workshop scraps). Textile Output from specific Textile Output Sources, will vary depending on the nature of the producer.

**Textile Output Sources:** specific activities which result in both usable and discarded textile outputs. A producer may have one or multiple Textile Output Sources. For example, there may be producers who manufacture textile goods, but do not sell directly to consumers, and as a result will not incur Post-Consumer Textile Outputs but will incur in pre-consumer textile outputs. Each producer will select the Textile Output Sources that apply to their specific activity in order to obtain the correct Textile Footprint measurement.

**Pre-Consumer Textile Outputs:** textile outputs incurred during the manufacturing process before the end product is sold to the end consumer.

**Post-Consumer Textile Outputs:** consumer goods marketed to the end consumer directly by the producer.

**Gross Textile Footprint:** the sum total tonnes of textile from all textile output sources applicable to a producer. The total amount of textile generated within an assessment period regardless of its final destination.

**Net Textile Footprint:** the result of incorporating mitigation practices that can be deducted from the Gross Textile Footprint, these being: textile outputs stored, traceably managed, recovered, or offset through mandatory or voluntary contribution. For these purposes, the Net Textile Footprint is the tonnes of textile over which control has been lost at the end of a given assessment period. This Net Textile Footprint can be offset through the textile credit offsetting platform for the producer to achieve textile neutrality.

**Declared Destination:** third party to which textile output or recovered textile, in the case of implementing mitigation practices of recovering used garments, are transferred. The Declared Destination, as opposed to the Verified Destination, is determined by the producer in the process of calculating its Textile Footprint.

**Verified Destination:** Declared Destination data verified by a third party. When the Textile Footprint is verified by a third party to certify the Destination data is changed from Declared to Verified. The producer must provide the relevant documentation to support the amounts declared in order to be verified by the third party.

**Textile Outputs Managed in a Traceable Way:** transfer of any quantity of textile outputs to a third party capable of verifiably providing the destination and use of textile.

**Leaked Textile Output:** textile outputs for which the producer is either unaware or unable to provide valid documentation to verify their whereabouts. These textile outputs are accounted for in each of the applicable Textile Output Sources in the measurement

<sup>1</sup> Head of State. *Law 7/2022 on Waste and Contaminated Soils for a Circular Economy*. Official State Gazette no. 85, with reference BOE-A-2022-5809. 09/04/22.

<sup>2</sup> Ministry of Relations with the Courts and the Secretariat of the Government of Spain, *Royal Decree 928/1987, of June 5, regarding the Labeling of Composition of Textile Products*. BOE num. 170, Reference BOE-A-1987-16727, Spain, 17/07/1987.



period to facilitate the detection of leakage points. Their sum total is reflected alongside the rest of the textile outputs in the Gross Textile Footprint but more specifically in the Net Textile Footprint as these are emissions over which the producer has lost control and must take responsibility.

**Textile Footprint Mitigation Practices:** initiatives undertaken by the producer aimed at preventing textile outputs along the value chain, counteracting unavoidable emissions already incurred, as well as improving circularity.

**EPR:** Extended Producer Responsibility. The principle whereby the cost of managing the waste generated by the products placed on the market is passed on to the producer. It is a term coined in the context of the European Union and can be summarised as “the polluter pays”.

**Textile Waste Reduction Project:** Any initiative that proposes a reduction of leaked textile that involves additionality and is measurable and traceable.

**Additionality:** the indispensable premise for offsetting to be truly equivalent. This means that a project must ensure that the reduction of tonnes of textile waste was achieved due to the additional financial support provided by textile offsets. This additionality is calculated using a “baseline” which is the amount of textile that would be recovered under normal conditions and without the project activity. In simplified terms, the tonnes of textile that the project recovers above this baseline is considered additional and can be converted into Textile Credits. For example, the recovery and traceable management of 200 tonnes

of textiles by Project X could only occur through the sale of 200 textile credits to a producer willing to offset its Textile Footprint. The recovery could not have taken place without the contribution of such a producer, which is essential for real equivalence. Both the methodology for calculating additionality and the baseline are contained in the “T-Standard Protocol for Textile Waste Reduction Projects” currently under development by T\_NEUTRAL.

**Textile Credit:** unit of exchange equivalent to one tonne of recovered textile. Textile Waste Reduction Projects are issued Textile Credits based on their impact (the tonnes of textiles they collect, for example), which are then sold to producers who want to offset their Textile Footprint. Producers wishing to offset their Textile Footprint will have to buy textile credits equivalent to the tonnes to be offset (if they want to offset 20 tonnes, they will have to buy 20 credits from the chosen projects). Textile Credits are issued by a certified third party based on the verified project impact, and are unique and registered in a public central registry with a reference code. In this way, once purchased, they are permanently removed from circulation to prevent them being purchased again.

**Textile Footprint Offsetting:** Voluntary monetary contribution made by the producer to neutralise its Textile Footprint completely or partially. This contribution is made by purchasing Textile Credits equivalent to the tonnes to be offset from certified Reduction Projects with Textile Credits available for sale. All textile credit transactions must be registered in a central register open to public consultation.



## 2. Introduction

### 2. 1. Current Context: Towards a Circular Future

Climate change is the main challenge of our time. A challenge that confronts us with the unavoidable responsibility to somehow solve. The latest IPCC report<sup>3</sup> leaves no room for doubt: human beings have, since industrialisation began, warmed the atmosphere, the earth, and the oceans, causing irreversible changes, which will continue for centuries to come.

Despite being able to simulate climate behaviour and predict the impact of greenhouse gases on the earth's temperature since the 1970s, it was not until December 2015, at COP21 in Paris, that a historic agreement, the Paris Agreement<sup>4</sup>, was reached to begin the path towards reversing climate change and accelerating the actions and investments needed for a sustainable, low-carbon future. This was the first multilateral binding agreement that set common goals and shared responsibilities among nations to strengthen the global response to the threats of inevitable climate change. Seven years and millions of Euros were spent on a myriad small and large-scale measures, and by 2022 we have not only failed to reverse the trend, but have accelerated it, heading towards exceeding the 1.5°C temperature limit. Global greenhouse gas emissions from developed countries have decreased by only 13% between 1990-2018<sup>5</sup>, while countries such as China, with explosive growth rates, have tripled their emissions between 1990 and 2019<sup>6</sup>. At the current level of Nationally Determined Contributions, the world is a long way from meeting the Paris Agreement targets.

Although climate change is the most commonly discussed area of concern, it is important to remember that it is only one of nine planetary boundaries that, if exceeded, can threaten the habitability of the planet. This conceptual framework of *The Planetary Boundaries*<sup>7</sup> developed by the Stockholm Resilience Centre identifies the nine processes that regulate the Earth's stability and resilience, and sets out the threshold within which humanity must stay in order to thrive.

These 9 areas to consider are: climate change, ocean acidification, the ozone layer, the nitrogen and phosphorus cycle, particulate pollution of the atmosphere and chemical pollution. All of these processes are the result of human activity and affect the survival of life on the planet.

Such activity has been increasing exponentially since the industrialisation of the world's wealthiest nations, and has only been possible due to the lack of adequate sharing of responsibilities for both environmental and social impacts, or, in other words, failing to respect planetary boundaries.

As Kate Raworth, author of *The Doughnut Economics*<sup>8</sup>, a visual framework for sustainable development that combines the concept of planetary boundaries with the one of social boundaries, rightly explains: “a healthy economy should be designed to thrive, not to grow”<sup>9</sup>. Such prosperity can only exist if the development of human activity is kept within those planetary and social boundaries. This idea of responsible production and consumption aligns naturally with other movements such

<sup>3</sup> Intergovernmental Panel on Climate Change, *The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, 2021.

<sup>4</sup> United Nations Framework Convention on Climate Change, *Paris Agreement*, Paris, 2015.

<sup>5</sup> United Nations Framework Convention on Climate Change, *Nationally Determined Contribution* (NDCs), 2020.

<sup>6</sup> Kate Larsen, Hannah Pitt, Mikhail Grant, and Trevor Houser, “China's GHG Exceeded the Developed World for the First Time in 2019”, *Rhodium Group*, 6-05-2021.

<sup>7</sup> The Resilience Alliance, *The Planetary Boundaries Exploring the Safe Operating Space for Humanity*, SRC, 2009



## 2.1. CURRENT CONTEXT: TOWARDS A CIRCULAR FUTURE

as the Degrowth Theory promoted by experts such as Abhijit Banerjee and Esther Duflo<sup>10</sup>, Nobel laureates in economics, who state how a controlled decrease in production and consumption would have a direct effect on increasing global social and environmental well-being. This approach does not mean the end of the business or productive activity; on the contrary, it attaches prosperity and wealth generation intrinsically to generating a positive impact on the environment or, at the very least, to taking responsibility for the negative impact. As Christian Felber states in his prize-winning *Economics for the Common Good*, this approach “neither abolishes financial balance sheets nor prohibits private companies from pursuing profit (...), financial profit is no longer the goal of the entrepreneurial pursuit but a means to make the greatest possible contribution to well-being”<sup>11</sup>.

The need to focus on a complete change of model and not just on decarbonisation as an isolated solution is reflected in the study *Completing the Picture*<sup>12</sup> by the Ellen MacArthur Foundation, which concludes: “efforts to decarbonise energy systems based on the use of renewable energies and the promotion of energy efficiency could address at most 55% of total emissions; while the remaining 45% corresponds to the scope of the circular economy”. Similarly, according to the World Circular Economy Forum report, the adoption of circular processes could reduce greenhouse gas emissions in some sectors by 79-99%<sup>13</sup>.

Faced with this scenario, we can only accept what science and history seem to be telling us: it is clear that continuing to invest resources in repairing the system on which the socio-economic development of the last century has been based does not work. Therefore, we can no longer postpone starting to direct efforts towards the construction of a new model that allows us to prosper in coexistence with the environment, placing planetary boundaries at the centre and not on the sidelines.

Without wishing this document to be a dissertation on economic models, we consider it essential to provide adequate contextualisation and establish the general theoretical foundations on which we are building T\_NEUTRAL, a profit for purpose company that works to provide tech-based solutions rooted on purpose, accountability, and the search for prosperity, to accelerate the circular transition of the textile industry. This abstraction is essential to show how stopping global warming and recovering biodiversity is a collective effort of degrowth and transition towards circular systems in all areas of human activity, so that, by imitating nature, the rational use of resources is guaranteed, energy consumption is limited and even the very concept of waste is eliminated.

<sup>8</sup> Kate Raworth, *The Doughnut Economics - Seven Ways To Think Like a 21st Century Economist*, Penguin Random House, UK, 2017.

<sup>9</sup> Kate Raworth, *A Healthy Economy Should Be Designed To Thrive, Not Grow*, TED Talks, 05-2018.

<sup>10</sup> Abhijit Banerjee, Esther Duflo. *Growth Theory Through the Lens of Development Economics*, Massachusetts Institute of Technology, 2004.

<sup>11</sup> Christian Felber, *Economy of the Common Good*, 6th Edition, Deusto, 2019, p.21.

<sup>12</sup> Ellen MacArthur Foundation, *Material Economics. Completing the Picture*, 2019.

<sup>13</sup> International Resource Panel, United Nations Environment Programme, *Re-Defining Value – The Manufacturing Revolution. Remanufacturing, Refurbishment, Repair and Direct Reuse in the Circular Economy*, Nairobi, Kenya, 2018.



## 2. 2. Textile Circularity

For more than a decade, the textile industry has been under scrutiny for the high environmental and social cost of its activity. Despite the efforts of brands to adopt more sustainable practices in their business models, the reality is that in 2022 the textile industry still represents one of the sectors with the greatest negative impact on the environment. According to EU data<sup>14</sup>, textile production is estimated to be responsible for 10% of total global CO<sub>2</sub> emissions, ahead of the aviation and maritime industries combined. This is not surprising when we consider that the prevailing model is that known as “fast fashion” based on quantity and speed, that locates its manufacturing sites in developing countries, where energy generation relies mainly on coal. But the textile industry not only contributes to climate change, returning to the above mentioned Planetary Boundaries, this “fast” model also demands speed and quantity in the consumption of natural resources in order to supply the voracious textile machinery. Every year more than 200 million trees are cut down to be transformed into fabrics such as viscose or rayon, 30% of which come from ancient and endangered forests that were once home to native plants and animals<sup>15</sup>. Materials such as wool or leather are sourced from livestock farms which already account for 80% of the Amazon and 90% of Australian deforestation, and is estimated to be responsible for 20% of the world’s water pollution<sup>16</sup>.

In addition to the high consumption of energy and natural resources, the speed with which the product is put on the market has also led to a change in consumer behaviour, turning fashion garments into disposable items. On an individual level, each European buys 26 kilos of clothes per year and throws away 11 kilos<sup>17</sup>. The data tells us that we are buying and disposing of more than ever, putting waste at the very heart of the textile industry. This situation of unmanageable waste has become the next big challenge for an industry that produces around 100 billion garments a year globally<sup>18</sup>, generating 92 million tonnes of textile waste<sup>19</sup>, 87% of which ends up in landfills or incinerated, and only 13% is recycled or reused<sup>20</sup>. Landfilled textiles not only have an impact on soil pollution (and linking with the aforementioned global carbon targets), **depositing one tonne of textiles in a landfill has a carbon footprint impact of 444.94 kg/CO<sub>2</sub>e<sup>21</sup>**. According to current projections, by 2030 134 million tonnes of textile waste is expected to be discarded worldwide<sup>22</sup>.

The global threat posed by textile waste is of such urgency that national and supranational governments are beginning to develop regulatory frameworks with a special focus on Extended Producer Responsibility for the materials they release into the system. This is the case of the EU’s *European Green Deal*<sup>23</sup> and Spain’s *Law on Waste and Contaminated Land*<sup>24</sup>, which demand effective actions and results by 2025, both for previously regulated materials such as packaging and glass, but also for those never before regulated such as textiles, which now have specific targets for prevention, reduction and selective collection for the next decade. This new regulatory context lands in a textile sector lacking structural and industry-wide solutions to help address these goals in an organised and effective way. Producers are increasingly concerned about their environmental impact and the new legal requirement to include textile waste among their responsibilities.

<sup>14, 20</sup> “The Impact of Textile Production and Waste on the Environment”, *European Parliament News*, 29-12-20.

<sup>15, 16</sup> Canopy, *Accelerating Solutions in this Turn Around Decade. 2022 Annual Report*, Canopy. 2022.

<sup>17</sup> European Environmental Agency, *Textiles in Europe’s Circular Economy*, 2019.

<sup>18</sup> McKinsey Sustainability, *Style That’s Sustainable: A New Fast-Fashion Formula*, 2016.

<sup>19, 22</sup> Global Fashion Agenda, Boston Consulting Group, Sustainable Apparel Coalition, *Pulse of the Fashion Industry*, 2019.

<sup>21</sup> DEFRA, *Carbon Factors 2021*, UK, 2021.

<sup>23</sup> European Commission, *Meeting the EU’s 2030 Climate Target on the Road to Climate nNeutrality*, 14-7-21.

<sup>24</sup> Head of State. *Law 7/2022 on Waste and Contaminated Sols for a Circular Economy*. Official State Gazette num. 85, with reference BOE-A-2022-5809. 09/04/22.



Textile producers, as the drivers of the production machinery, play a pivotal role in the circular transformation of the industry. As explained in McKinsey's State of Fashion 2022 report<sup>25</sup> *“one of the most important levers that the fashion industry can pull to reduce its environmental impact is closed-loop recycling, a system now starting to be rolled out at scale, promising to limit the extractive production of virgin raw materials and decrease textile waste. As these technologies mature, companies will need to embed them into the design phase of product development while adopting large-scale collection and sorting processes”*. As an increasing number of actors engage with circular materials, scaling up will be essential for their collection, sorting, and recycling, ergo, to ensure access to circular textiles, these actors will need to engage more directly with the waste management ecosystem, actively contributing to finding solutions for collection, sorting, and recycling. Textile producers have a great opportunity to integrate eco-design techniques to extend the useful life of their garments into their processes, material selection strategies that reduce their impact on the environment and ensure their recyclability, and even changes in their business models to progressively move away from linear growth models.

This new shift in perception towards recycled or reused materials also affects the consumer. Since 2021, the second-hand clothing market is booming in developed countries. According to ThredUp's annual report<sup>26</sup>, the resale market is projected to grow from 36 to 77 billion dollars in 5 years, with forecasts of doubling the fast fashion market by 2030. Second-life garments seem to have overcome the stigma, but as we have seen previously in the case of textile producers, improving the “what” is fundamental, but it is not enough if it is not accompanied by a reduction in the “how much”.

The acceptance of second-hand clothes as a responsible consumption option, which is brought about by a greater collective awareness of sustainability in clothing consumption, can also be seen as a reflection of the reluctance to stop consuming voraciously. Likewise, the donation of used clothing, generally assumed as a sustainable action and even social good, has also increased in recent times, but contrary to popular belief, most of the clothing collected is not suitable for reuse or recycling, either because of its low quality of origin or the lack of adequate technology for its recycling (7 billion dollars in technology and infrastructure will be needed to recycle 75% of the textile from the fashion industry)<sup>27</sup>. What ends up happening with all this “donated” clothing that cannot be recycled or reused in local markets, is that it ends up traveling to other parts of the world creating environmental disasters comparable to those caused by plastic (60% of the clothes we have in our wardrobes are made of petroleum-based material)<sup>28</sup>. According to ASIRTEX, the Spanish Association of Textile Recycling Companies, 59,725 tonnes of used clothing were exported in Spain in 2018<sup>29</sup>.

<sup>25</sup> McKinsey & Co., Business of Fashion. *The State of Fashion 2022*, 2022.

<sup>26</sup> ThredUp, GlobalData. *Resale Report*, 2022.

<sup>27</sup> McKinsey & Co., Global Fashion Agenda, *Scaling Circularity*, 2021.

<sup>28</sup> European Environmental Agency, *Plastic in Textiles: Towards a Circular Economy for Synthetic Textiles in Europe*, 2021.

<sup>29</sup> ASIRTEX, *The International Used Clothing Trade in Spain*, Spain, 2019.



## CASE #1: THE KANTAMANTO MARKET

*The Kantamanto market in Accra, Ghana, is one of the largest second-hand clothing markets in the world. It receives 15 million used garments every week, mostly from the USA and Canada. Of these millions of garments, 40% are discarded because of their poor quality, ending up in informal landfills and polluting entire ecosystems. But in addition to the environmental disaster facing Accra, the Kantamanto market is also an example of social injustice as the conditions under which workers have to operate are a reflection of the abuse to which the more developed countries expose the less developed. Kantamanto's second-hand clothing retailers buy bundles of clothing by weight, unable to select the contents and lacking the option of returning the bundles if the contents are unsaleable (either because they*

*are damaged or contain poor quality clothing), mainly because they have no way of contacting the sender. The reality for Kantamanto workers is that they have no information or transparency on what happens before the clothes "end up" in Ghana, and their only option for unusable goods, apart from the negative impact on their business, is to deposit them in informal dumps where thousands of tonnes of clothes pile up unchecked. This state of constant instability leads these workers, true examples of the circular economy, to live in a situation of constant economic debt, with no option to prosper. As The OR Foundation says "We cannot allow Kantamanto retailers to absorb the debts of the entire fashion industry"<sup>30</sup>.*

## CASE #2: PUERTO DE IQUIQUE

*Over 50% of the goods that enter Chile each day through the port of Iquique are rubbish, and just 12 kilometres away, a town called Alto Hospicio has recently become the illegal dumping ground for 39,000 tonnes of second-hand clothing each year. In Iquique alone, a city of 190,000 inhabitants, there are approximately 50 importers of second-hand clothing and goods whose entry is currently not controlled. According to Rosario Hevia, engineer, and CEO of Ecocitex, "many people buy large quantities of clothes that arrive in containers and sell what is good in 'contests': they are all dumped in a mountain and people pay an entrance fee to take out what is in better condition for a few hours. The rest is dumped illegally in the desert, some 20,000 tonnes of textiles*

*a day, according to Edgar Ortega, head of Alto Hospicio's environmental department. In order to try to provide a solution to the problem, Hevia founded Ecocitex in 2020, the only company in the world dedicated to the sustainable recycling of mixed fibre clothing. Both Hevia and Morán agree that laws are needed to require traceability for clothing producers. "Producers and importers have to take responsibility for what they put on the market and manage the waste they generate. If someone sells 3 tonnes of clothes, they have to collect another 3 tonnes from the market and take care of it, treat it sustainably, or pay someone to do it (...) So everyone takes care of their textile waste. Each country has to take care of what it is generating"<sup>31</sup>.*

In this context, it is clear that to address environmental emergencies such as textile waste, it is essential to propose solutions from a collective and global perspective, to generate an open and collaborative conversation that facilitates the standardisation, accessibility, and homogenisation of language and tools, so that we achieve a real link between producers, citizens, administrations and the waste management ecosystem, to tackle the problem of textile waste from a co-responsibility perspective and thus accelerate the circular transition of the textile sector.

<sup>30</sup> The OR Foundation [theorispresent]. (11-12-21). <https://www.instagram.com/p/CXW5ZTgNgWZ/>

<sup>31</sup> Eva Dallo. "The Atacama Desert, the Largest Clothing Landfill in the World", *El Confidencial*. 11/02/22.



# 3. Change of Perspective: from Waste to Resource

According to the Royal Spanish Academy of the language, the concepts of waste, emission, and resource are defined as:

- **Waste:** Material left unusable after work or operation has been carried out.
- **Output:** The action of throwing, exhaling, or expelling something.
- **Resource:** A set of elements available to solve a need or carry out an enterprise.

The need to propose a paradigm shift for textile waste is motivated by the paradox in which the sector currently finds itself. A sector in the midst of a process of change towards circularity, struggling to abandon old practices and concepts that are incompatible with the basic principles of the circular economy.

Despite efforts to move towards sustainability, the reality of the industry still reflects a linear system, which continues to promote consumption and the rapid disposability of garments. Although this model has been in place for only a few decades, it has managed to provoke structural changes around it, such as the modelling of compulsive consumption behaviours, which is reflected in the exponential growth of clothing sales and the decrease in wear time. According to the report *A New Textiles Economy: Redesigning Fashion's Future* by the Ellen MacArthur Foundation, in the last 15 years the production of clothing has doubled while the use of each garment has decreased by 36.3%<sup>32</sup>.

In this context, with exponential growth in production and waste generation, there is a painful but no less ubiquitous paradigm that cuts across the textile sector: any garment, regardless of the level of sustainability and circularity applied in its production, once it is marketed automatically becomes potential waste. This is because the producer completely loses control of the garment's end of life at the moment of sale, and if we look at the statistical data available to see what its fate will be, according to the US Environmental Protection Agency, we find a landfill/incineration rate of 85%<sup>33</sup>. This reality clashes head-on with the transformative and circular vision towards which the textile sector aspires, where clothing, fabrics, and fibres maintain their value throughout their entire life cycle and are reincorporated into the economy after use, without ever being considered waste.

This paradigm shift concerning waste is becoming necessary not just conceptually, but also for practical purposes. There are already examples where continuing to talk about waste rather than resources is contrary to the circular transformation and even an impediment to the development of the recycling industry itself. As Ronna Chao, president of Novetex Textiles, a Chinese pioneer in closed-loop textile recycling (using discarded textile as raw material for spinning new textile) explains, *"the company has difficulty shipping our fibres directly from our Hong Kong factory to our Zhuhai factory because there's a rule against importation of waste"*<sup>34</sup>.

Although it is true that in the case of Novetex the problem stems from the specific issue of regulations derived from the excessive import of waste that affects certain countries such as China, this linguistic asynchrony, which at first sight might seem a minor issue, is in many cases one of

<sup>32</sup> Ellen MacArthur Foundation, *A New Textiles Economy: Redesigning Fashion's Future*, 2017.

<sup>33</sup> U.S. Environmental Protection Agency, *Advancing Sustainable Materials Management: 2018 Fact Sheet. Assessing Trends in Materials Generation and Management in the United States*, 12-2022.

<sup>34</sup> McKinsey & Co., Business of Fashion. *The State of Fashion 2022*, 2022.



### 3. CHANGE OF PERSPECTIVE: FROM WASTE TO RESOURCE

the major impediments faced by pioneering initiatives in circularity that already operate under this paradigm change, but are forced to do so in a system that has not yet evolved with them. This example perfectly illustrates the importance of this reflection to achieve the transition between the current linearity where the vast majority of textiles end up as waste, and a circular system where everything is put to good use. This paradigm shift is necessary in order to be able to leave behind what the textile industry is today and start on the path towards what we want it to be.

At T\_NEUTRAL we advocate a change in language to recognise the state through which a good goes through between being discarded and being incorporated as an input into the next phase of the chain. Calling what is discarded from a production or use process waste is strongly rooted in a linear system in which the material is named according to its direct utility. This complicates the possibility of including other utilities that are not part of this linear process, for example, those that work with the discarded textile as their main resource (see the case of Novatex mentioned above), which is fundamental in order to pursue the path towards circularity. For this reason, at T\_NEUTRAL we propose a homogenisation of the language, replacing textile waste with textile output, defined as the quantity of textile resulting from any production process or use, that textile that is emitted, that is expelled, that goes out. In this way, we manage to strip the material of any qualification of usefulness, completely opening the circle to all possible forms of exploitation and use, both present and future.

It is important to note that we are not alone in this proposal to reformulate language. Internationally recognised experts are already making this need for change clear, as is the case of Karla Magruder founder of Fabrikology and Accelerating Circularity, who states how *“there is a lot at stake when it comes to thinking about post-consumer textiles. I try to stay away from the word ‘waste’ because it’s not going to be waste anymore. It’s going to be a commodity”*<sup>35</sup>.

Throughout this document, we will actively avoid calling waste what in the eyes of circularity is a potential resource, though we are aware of how widespread the term is and that it corresponds to current reality. We consider that textile output, as opposed to residue or waste, covers a much broader meaning, which includes the previous ones, so that it works equally effectively to refer to the reality of what is currently known as textile waste. Thus, from now on, it will not be considered as waste but as textile output to the tonnes of textile resulting from the activity, whether it be workshop scraps or goods launched on the market, since the ultimate target is precisely that this material does not end up being wasted and therefore, becoming a risk for the environment and a waste of resources in the circular economy. With this use of language, we make a necessary distinction between a resource that can be transformed and reused if properly managed and an unusable material that in one way or another will end up polluting the environment.

This conscious change of language aims to combat today’s reality with tomorrow’s words.

<sup>35</sup> “Used fabrics and garments are not considered waste; they are post-consumer textiles and must be recycled”. *Comunidad Textil*. 29-10-2018.



# 4. Introduction to the Textile Footprint

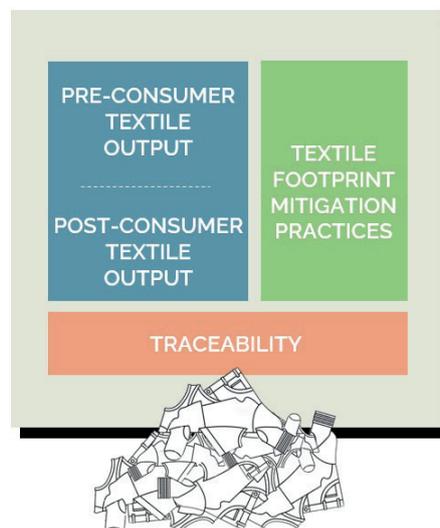
## 4. 1. Measure/Reduce/Offset a transitional model towards circularity

Under the premise of William Thomson Kelvin, British physicist and mathematician, “*what is not defined cannot be measured. What cannot be measured cannot be improved. What is not improved is always degraded*”, the first thing to do to solve a problem is to name it. Just as the carbon footprint is the measurement framework for the greenhouse gas emissions of a product or activity with the aim of developing effective and homogeneous measures against global warming, it is vital to determine an equally homogeneous and cross-cutting metric for the textile sector that helps to quantify and trace the tonnes of textile outputted into the system by a producer in order to effectively and structurally address textile waste.

T\_NEUTRAL proposes to call the tonnes of textile, both useful and discarded, outputted along the supply chain of a textile producer in a given period, counting both the amount of material “outgoing” from its production activity and the traceability of its whereabouts (if it has been stored, transferred to another in a traceable way or leaked uncontrolled), as well as the goods traded and the mitigation practices that have been put in place to prevent or correct these textile outputs the Textile Footprint.

Figure 1: TEXTILE FOOTPRINT GENERAL DIAGRAM

### Textile\_Footprint





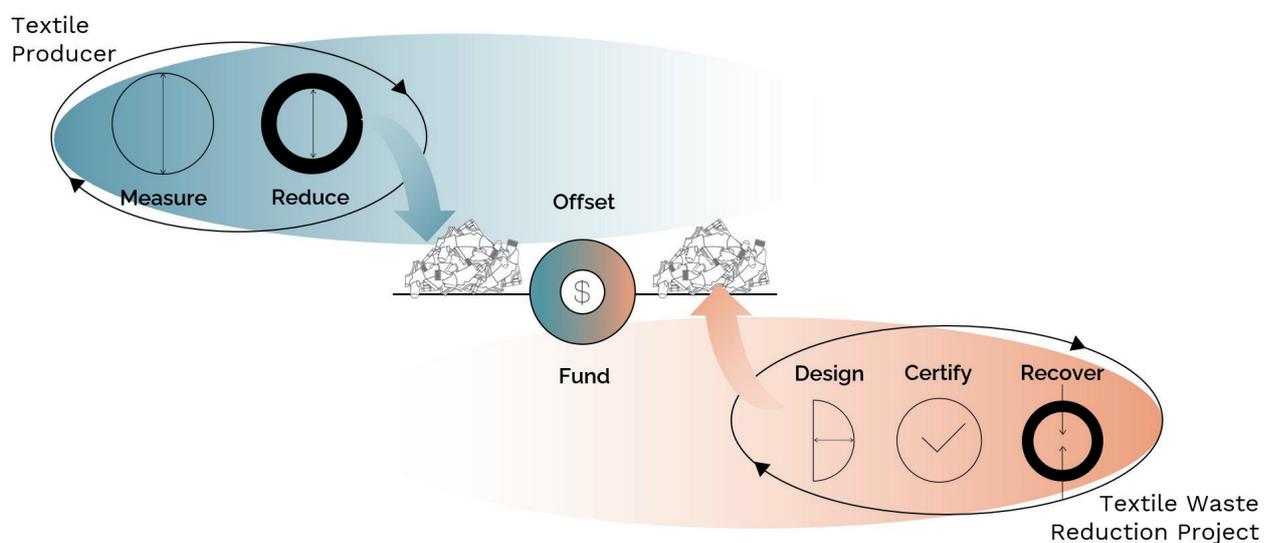
#### 4.1. MEASURE/REDUCE/OFFSET AS A TRANSITIONAL MODEL TOWARDS CIRCULARITY

The Textile Footprint is proposed as a specific, cross-cutting, and homogeneous metric that allows for specific evaluation exercises, as well as comparative and progressive ones, to establish mitigation and circularity measures both individually for each textile producer and at an industry level.

As previously stated, establishing a consensus metric is the first essential step in order to build any model with the aim of tackling a global problem. This is why the Textile Footprint is currently the focus of our work and the cornerstone on which to develop the “Measure-Reduce-Compensate” model of transition towards the circularity of textiles with long-term transformational objectives that we propose at T\_NEUTRAL.

The “Measure-Reduce-Compensate” (or “M-R-O”) framework is well known in the world of environmental impact mitigation. The system used for carbon emissions has been in place for decades thanks to the carbon footprint methodology (Measure), the many decarbonisation initiatives and emission reduction practices (Reduce), and the voluntary carbon credit market (Offset). The basic logic behind such a model is: measure the emissions from a past period, implement measures to reduce them for the next assessment period, and lastly, take responsibility for those emissions impossible to reduce by making an equivalent monetary contribution to a certified actor that has had the opposite effect to virtually neutralise those emissions.

**Figure 2: “MEASURE/REDUCE/OFFSET” MODEL**



We consider this model a transitional one because it is designed with long-term transformational goals in mind, which can only be achieved through consensus solutions that can adapt to the current context, while at the same time accelerate the transformation towards the reality we want. The “M-R-O” contains two iterative elements, Measure and Reduce, designed to be maintained as an indefinite circle of evaluation and improvement on prevention and circularity, and one corrective element, Offsetting. This last element works as a temporary accelerator assuming that the transition towards complete circularity will take time, and that until it is fully achieved the control over a certain amount of textile will inevitably be lost at the end of an exercise (in addition to the textile already in landfills). Offsetting is a very effective vehicle for directly linking the polluter with those on the



#### 4.1. MEDIR/REDUCIR/COMPENSAR COMO MODELO DE TRANSICIÓN HACIA LA CIRCULARIDAD

front line of waste through financial contributions that allow for the additional collection of textiles that would not have been possible in its absence. At the same time, Offsetting also contributes to the sustainable development of areas where discarded textiles are a problem through the creation of these certified textile waste reduction projects, whose viability is ensured by producers taking responsibility for their inevitable textile output.

The efforts of the “M-R-O” model should be aimed at strengthening Measure and Reduce in order to be able to, over time, minimise or even dispense with Offsetting, which will be an unequivocal sign of having achieved the circularity objectives set. From the above, it is understood that a solution to textile waste based only on offsetting type models, however direct their effect may be, are static and short-term solutions, insufficient to achieve the needed structural transformation. For this reason, at T\_NEUTRAL we propose a model of transformation towards circularity with a focus on Measure and Reduce, and using Offsetting as an accelerating tool towards the elimination of textile already discarded without control, and a bolster of sustainable development for those on the front line of textile waste.

**“Offsetting 5% of what is produced each year could generate around 170 million euros towards textile waste reduction projects, and would help recover 1.7 million tonnes of landfilled textile.”**

T\_NEUTRAL TEAM

## 4. 2. Alignment with Consensus Frameworks to Achieve Global Objectives

Before we go into detail about the Textile Footprint itself, we should make a series of semantic observations to help establish the basic definitions, the scope of the solution and its scope of application. With this in mind, the methodology has been developed in line with European and Spanish regulations relating to the textile sector, waste management and environmental footprint measurement, with the aim of sharing a common language, in order to help improve assimilation, coexistence with other environmental measurements in use, and provide solutions to future challenges within the framework of European environmental impact control plans. T\_NEUTRAL is a global initiative, and as such we work towards global objectives and commitments, such as:

Zero Textile  
to Landfill

100%  
Traceability

100%  
Circularity





### 4.3. ALIGNMENT WITH CONSENSUS FRAMEWORKS TO ACHIEVE GLOBAL OBJECTIVES

That said, T\_NEUTRAL was conceived to be global in scope, which is precisely why we have begun by basing the solution on the most current international regulatory framework that best applies to the field that concerns us, in order to continue to broaden the scope and extend it to other realities outside the European Union, always supported by international consensus frameworks.

Specifically, the documents taken as a reference for this methodological proposal are:

- Regulation (EU) No 1007/2011 of the European Parliament and of the Council of 27 September 2011 on textile fibre names and related labelling and marking of the fibre composition of textile products, and repealing Council Directive 73/44/EEC and Directives 96/73/EC and 2008/121/EC of the European Parliament and of the Council<sup>36</sup>.
- Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste<sup>37</sup>.
- Reports and guidelines under the “2013–2016 Environmental Footprint Pilots (PEF)” for products and organisations footprint carried out by the European Union’s Directorate-General for the Environment<sup>38</sup>.
- Law 7/2022 on Waste and Contaminated Land for a Circular Economy. Spain, 2022<sup>39</sup>.
- Protocol ISO 14044 (2006) for Life Cycle Assessments<sup>40</sup>.
- Protocol ISO/DIS 14067 (2012) for a Product’s Carbon Footprint<sup>41</sup>.
- ILCD Manual (International Reference Life Cycle Data System) for nomenclatures and other conventions drawn up by the European Commission in 2012<sup>42</sup>.

At an international level, we currently have numerous methodologies for measuring the different environmental impacts of the production of a garment and its life cycle (water, carbon, chemicals, etc.). In addition to responding to an obvious environmental need, the Textile Footprint also aims to respond to the sector’s growing commitment to be aware of its impact and to promote circularity. A common measurement methodology at industry level is vital for future measurement and transparency needs linked to the requirements of Extended Producer Responsibility schemes under the Waste and Contaminated Land Act as well as the European Directive EU 2018/851 on waste, which stipulates that “*Member States shall ensure that an information system is in place to collect data on the products placed on the Member State’s market by producers of products subject to extended producer responsibility, and data on the collection and treatment of waste resulting from those products, specifying, where appropriate, the waste material streams, as well as other relevant data (...)*”<sup>43</sup>.

<sup>36</sup> European Parliament, *Regulation (EU) No 1007/2011 of the European Parliament and of the Council of 27 September 2011 on textile fibre names and related labelling and marking of the fibre composition of textile products*, 27-09-2011.

<sup>37</sup> European Parliament, *Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste*. 03-05-2018

<sup>38</sup> European Commission, *Environmental Footprint Pilots*, 2013-2016.

<sup>39</sup> Head of State. *Law 7/2022 on Waste and Contaminated Sols for a Circular Economy*. Official State Gazette num. 85, with reference BOE-A-2022-5809. 09/04/22.

<sup>40</sup> ISO, *ISO 14044:2006 Environmental Management, Life Cycle Assessment, Requirements and Guidelines*, 2006.

<sup>41</sup> ISO, *ISO 14067:2018 Greenhouse Gases, Carbon Footprint of Products, Requirements and Guidelines for Quantification*, 2018.

<sup>42</sup> European Commission, *International Reference Lifecycle Data System (ILCD) Handbook*, 2012.

<sup>43</sup> European Parliament, *Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018*, Article 8 bis, 30-06-18.



## 4. 3. System Boundaries

In order to conceptualise a general framework for the Textile Footprint, we propose an initial organisation of the textile to be counted based on two fundamental parameters: Scope, Responsibility, and Object of Measurement:

### Scope

To define the scope of a producer's Textile Footprint, the textile outputs resulting from the direct development of its activity in a specific timeframe and geographical space must be considered. This is what we call Direct Textile Outputs, i.e. the textile resulting from those activities in which the textile involved is directly owned by the producer carrying out the measurement.

In addition to the Textile Footprint of a producer and only as a complement to provide a more complete picture of the horizontal traceability of textiles along the supply chain, future versions of this methodology will also provide a way to measure Indirect Textile Output, i.e. those emitted by third parties with which the producer has an inbound or outbound relationship (e.g. material suppliers or stockists). The producer does not own, nor is responsible for or directly control these indirect textile outputs, but it can be important to take them into account for declarations in regulated EPR systems or for circularity strategies aimed at a better selection of suppliers/clients who may also measure their Textile Footprint and who could help advance the common objectives of traceability and circularity.

By contemplating direct and indirect scopes, the measurement of textile outputs is not reduced to an isolated phenomenon that begins and ends with a producer, but rather shows the relational nature between all the agents involved, thus strengthening the principle of co-responsibility, and favouring the competitive advantage of those who actively measure their impact and can contribute positively to the activity of their suppliers or clients.

### Responsibility

In order to illuminate the traceability map of textile outputs, we must recognise the different actors that may make up the transformation chain along which these textile outputs occur, despite often being unable to establish clearly who is responsible for them, in order to avoid the risk of double-counting. For this reason, we have considered it essential to add the sphere of Responsibility, or delimitation of the duty regarding the management of the textile emitted to the Textile Footprint methodology. This is a general criterion through which to establish which actor is responsible for the traceable management of a textile output (in the case of pre-consumer textiles) or the costs associated with its traceable end-of-life management (in the case of post-consumer textiles). This is essential both in order to implement mitigation practices and to establish which outputs each actor in the chain is responsible for in a regulatory or voluntary offsetting exercise. Moreover, not delimiting responsibility makes accounting difficult, sometimes even resulting in double-counting.

As an example of the importance of this aspect, a direct reference on the need to establish such ownership of responsibility can be found in Article 11 on costs in the Spanish Law on Waste and Contaminated Land: *“Following the polluter pays principle, the costs relating to the management of*



waste, including the costs relating to the necessary infrastructure and its operation, shall be borne by the original waste producer, the current waste holder or the previous waste holder. Without prejudice to Articles 8 and 8a, Member States may decide that the costs relating to the management of waste shall be borne partly or wholly by the producer of the product from which the waste originates and that distributors of that product may share these costs”<sup>44</sup>. This text leaves the establishment of such responsibility open while making clear the importance of its delimitation.

For this reason, and given that there is still no principle or regulation that proposes a homogeneous way of regulating this aspect, we wanted to provide a general principle that is easily applicable to any type of producer, to use as a default starting point in the event of not having such ownership defined in an pre-established waste management plan. This principle is what we have called the Principle of Responsibility by Ownership.

### Principle of Responsibility by Ownership

We start from the premise that the object of calculation is a physical output, i.e. a tangible material that goes through a value chain composed of different actors to be transformed and marketed, which also requires a specific chain for its end-of-life treatment, and which, when dumped without control, occupies a physical place in the environment. This requires the establishment of clear boundaries in terms of the ownership of responsibility, which is essential to establish the extent of responsibility of each of the actors involved throughout the life cycle. This Principle of Responsibility by Ownership proposes that a producer is held responsible for textile outputs from any activities occurring while the textile is under their ownership, insofar as it is the direct owner of the material being manufactured, transformed, prepared, or traded, provided that no differing responsibility has been established in writing with any of the third parties with which it has a relationship.

Establishing the boundaries of responsibility for the management of textile outputs is the first step toward a traceable and robust Chain of Responsibility that also avoids double-counting. This means having a clear mapping of the origin and destination of the textile at each step of the supply chain, the horizontal (value chain) and vertical (destination traceability) movement of the resulting textile quantities, and the ownership of those involved.

### Measurement Object

It is important to note that while we are aware that the production of a garment incurs numerous environmental and social impacts throughout its life cycle, the object of measurement for the calculation of the Textile Footprint will be solely the tonnes of textile resulting from the unitary processes applicable to the activity of a producer for its quantification and traceability. The functional unit in this phase of the measurement will be 1 tonne of generic textile, irrespective of aspects related to its composition or origin. Further development of the functional unit is being worked on for inclusion in subsequent versions of this methodology once the appropriate study and validation has been carried out.

The measurement object, however, is not excluded from also being translated into other environmental equivalents in order to help establish a complete picture of the impact of textile

<sup>44</sup> Head of State. *Law 7/2022 on Waste and Contaminated Soils for a Circular Economy*. Official State Gazette no. 85, with reference BOE-A-2022-5809. 09/04/22.



outputs and mitigation practices, as well as to feed into other ESG impact indicators that the producer is actively working to improve.

### Geographic-Temporal Evaluation Parameters

The Textile Footprint can only be measured on past data, never future data, as it is a tool for measuring textile outputs and mitigation practices already incurred.

To delimit the Textile Footprint temporally, the start and end dates of an activity period must be taken. It is advisable to align it with the company's reporting windows in order to facilitate the collection of data and to enable the inclusion of results in their end of period reports. This limits the information included to the textile outputs and mitigation practices that have occurred only within this time period. Likewise, the documentation to be provided for verification must correspond to and/or be in force during that period.

It is worth noting that defining an assessment period between calendar dates can lead to pre-consumer textile outputs being disconnected from post-consumer outputs at a product level, i.e. goods manufactured in one period may not correspond to those that have been marketed in the same period (a shirt produced in one year may be marketed in the following year). Unlike Life Cycle Assessments that follow the transit of a specific product through all its life phases, the Textile Footprint is an analysis at activity level, not product level, i.e. the object of measurement is the amount of textile resulting from a production process in a specific period of time. This decoupling between pre-consumer and post-consumer textile outputs is essentially irrelevant for the purpose of the Textile Footprint as it does not influence the quantification and mapping of the outputted textile, and enables an overview of global flows and traceability.

Likewise, the geographical component of the measurement process is required throughout the reporting of textile outputs, both for traceability and for mitigation practices. This is key in the case of dealing with a physical material that is outputted at specific geographical points, to be able to trace the correct flows and to be able to make decisions on geographically specific data.



# 5. The Textile Footprint and its Components

The following points will detail the general concepts introduced in the Textile Footprint in order to clarify the methodological framework that has been defined keeping the following central principles in mind:

- **Universality:** to function as a general framework capable of accommodating any nature of textile producer, and allow for flexibility and evolution over time.
- **Specificity:** to be able to clearly define each type of parameter and its eligibility and quantification criteria.
- **Actionability:** for the methodology to serve, in addition to as a theoretical framework, as a useful and adaptable tool that can be applied by any producer to draw up effective action plans.

## 5. 1. Introduction to The Producer

**The Textile Footprint begins with a central figure: The Producer. It is they that are responsible for the environmental and social impact derived from their activity, which is why they are the main actor in the proposed model.** The responsibility for the textile outputs incurred in the production process as well as for the product that enters the market is derived directly from this. The responsibility of the latter is framed in the principle of Extended Producer Responsibility (hereinafter EPR). As defined by AITEX, the Textile Industry Research Association, “*EPR transfers to manufacturers the cost of managing the waste generated by the products they place on the market. It is a concept coined within the European Union’s policy that is summarised in the “polluter pays” principle. The aim is to ensure that no damage is generated to the environment through proper waste management, but without the cost being passed on to the administration and citizens who do not consume the product.*”<sup>45</sup>. The European Directive EU 2018/851 establishes as Extended Producer Responsibility Scheme “*a set of measures adopted by Member States to ensure that producers of products take financial or financial and organisational responsibility for the management of the waste phase of a product’s life cycle*”<sup>46</sup>, and obliges Member States to separate waste collection by 2025, in addition to setting specific targets for textile reuse and recycling that will substantially impact the producer value chain by requiring preparation to accommodate such targets.

For the proposed model, not only is the final product placed on the market considered as potential pollutant, but also the discarded material derived from its manufacture, accounted separately and specifically in the textile output sources in order to ensure a granularity of information that allows producers to meet their various commitments of circularity, both mandatory and voluntary.

<sup>45</sup> “What is EPR And How it Affects The Textile Industry”, [aitex.com](https://aitex.com), 30-04-2021.

<sup>46</sup> European Parliament, *Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste*, L 150/111, point 14, 30-06-18



As for the nature of the producers, we find actors who play specific roles but also others who bring different roles together in their activity that others do exclusively (supplier, manufacturer, marketer...). The manufacturing, transformation and marketing process is complex, and throughout the chain there may be textile outputs at various points over which a producer may or may not have direct control.

Thus, among others, we can find the fabric manufacturer that incurs textile outputs in the manufacturing process but not in its commercialisation, since it is a material supplier and not a seller of final products; the fashion brand that buys fabric and transforms and commercialises it as a final good, thus incurring pre-consumer and also post-consumer textile outputs; or the retailer that buys manufactured garments, incurring hardly any pre-consumer textile outputs (when buying the product already made) but only post-consumer outputs, since it is the seller of the good to the final consumer.

Given this heterogeneous nature and given the lack of precision in the definition of “textile product producer” in the regulatory frameworks of reference (as this definition is pending the development of the specific regulation on textile waste), we will use the generic definition of Product Producer provided in the Spanish Law on Waste and Contaminated Soils, which defines the producer as “*any independent organisation or person who develops, manufactures, processes, treats, fills, sells or imports products in a professional capacity, regardless of the sales technique used (...)*”<sup>47</sup>. On the basis of this general definition, we will establish the textile producer for the purposes of this methodology as any organisation or person that manufactures, transforms, handles or markets textile goods in a professional capacity.

In the development of this methodology for calculating the Textile Footprint we have actively sought to design a framework that can be applicable to any textile producer regardless of their nature, fragmenting the sources of textile outputs in such a way that anyone can select those that apply to their specific field of activity in a flexible manner, making the general assumption that not everyone will incur in all emissions, but most in at least one.

## 5. 2. Introduction to Textile Outputs

**Textile Outputs is the amount of textile material resulting from the manufacture, transformation, handling, and commercialisation of a textile good measured in tonnes.** Textile outputs come from the different textile output Sources, which are those specific activities that result in textile material in any of its forms (fabric, final product, intermediate piece...), whether useful or discarded, throughout the development of the textile producer’s activity in a specific period of time. These textile outputs may be **traceable**, if they are known and their exact whereabouts can be justified, or **leaked**, in the event their whereabouts are unknown or unable to be documented. It is important to note that in the textile outputs measurement assessment, not only is the quantity

<sup>47</sup> Head of State. *Ley 7/2022 de Residuos y suelos contaminados para una economía circular*. BOE num. 85, Referencia BOE-A-2022-5809, 09/04/22



calculated, but its traceability is also declared, i.e. where all accounted textile has ended up. This is what we call Destination and Purpose, which will be explained later in “Introduction to Traceability”. The aim of the horizontal (quantity) and vertical (traceability) assessment of textile outputs is to provide as clear a picture as possible in order to take action, both for prevention and correction, as well as to anticipate future impacts based on real data.

Depending on their nature, textile outputs are grouped into two fundamental typologies: pre-consumer, all those that occur in the manufacturing, transformation, or handling processes while the material is in the control of the producer, and post-consumer, goods marketed to the end consumer.

During the pre-consumer phase, unitary processes are carried out, such as prototyping which results in experimental pieces, cutting when leftovers and remnants are generated, or quality control when defective goods are detected; throughout all of them textile material is worked with and, therefore, textile outputs may be generated, which may or may not be traceably managed.

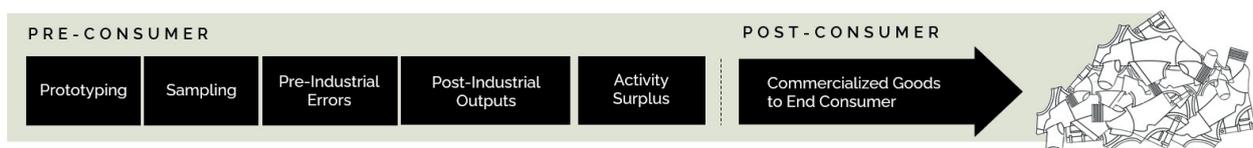
The second type of textile output occurs at the moment of commercialisation, i.e. when we sell the product on the market and lose control of its end of life, passing the responsibility for its end-of-life treatment to the consumer. This type of textile output is less obvious than the previous one, but a change in mentality toward the marketed product is essential in order to really understand the polluting potential of the textile activity and to establish responsibilities appropriately.

According to the explanation above, we can say that textile outputs are the summatory element for the calculation of the Textile Footprint, and their accounting results in the first main metric that makes up the Textile Footprint: the Gross Textile Footprint.

The Gross Textile Footprint is the sum of the textile outputs of each applicable textile output source in a measurement period, irrespective of its traceability, i.e. the entire amount of textile that “comes out” of the operational process of a producer. The Gross Textile Footprint is a metric focused on textile outputs in quantity (even without incorporating traceability), which offers a map by emission source that shows the intensity of textile outputs for each production activity, so that even at a very basic level, decisions can be taken to reduce them (for example, incorporating 3D prototyping software to avoid the use of textiles at that specific point).

**Figure 3: DIRECT TEXTILE OUTPUTS GENERAL DIAGRAM**

## Direct\_Textile\_Output





Taking into account the textile output sources and the different natures of the producers, to design a model that is sufficiently complete to cover all cases, but at the same time practical and flexible to be accessible to all types of producers and thus facilitate its adoption and effectiveness, direct textile outputs have been organised in the different unitary processes that make up the production and commercialisation of a textile good. Given this exhaustive yet flexible and open classification, each producer, depending on their nature, resources and the information at their disposal, may complete the data on textile outputs corresponding to their activity, establishing, where applicable, targets for improvement in measurement for future evaluations in cases where it does not have the necessary accounting maturity to provide the required information.

## 5.3. Introduction to the Textile Footprint Mitigation Practices

Textile Footprint Mitigation Practices are the initiatives carried out by the producer aimed at preventing textile outputs along the value chain, counteracting those unavoidable, as well as improving the circularity of their process.

A framework for Textile Footprint Mitigation Practices has been proposed based on two reference schemes commonly used when addressing problems related to waste and the environmental impact of an activity. On the one hand, the Waste Hierarchy<sup>48</sup> (Figure 4), a pyramid diagram that orders waste management actions from most to least environmentally favourable, and on the other hand, the Impact Mitigation Hierarchy<sup>49</sup> (Figure 5), a general working matrix that tries to identify and avoid potential impacts on the environment in the operation of a project or organisation.

<sup>48</sup> European Parliament, *Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives*, Artículo 4. 19-11-08.

<sup>49</sup> CSBI, The Biodiversity Consultancy, *A Cross-Sector Guide for Implementing The Mitigation Hierarchy*. 2015.



5.3 INTRODUCTION TO THE TEXTILE FOOTPRINT MITIGATION PRACTICES

Figure 4: WASTE HIERARCHY DIAGRAM

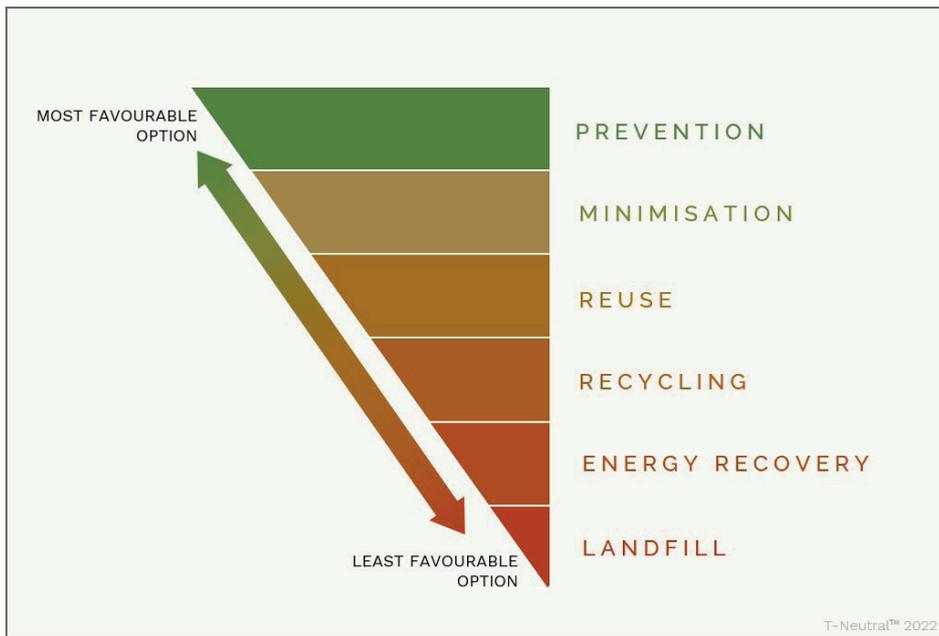
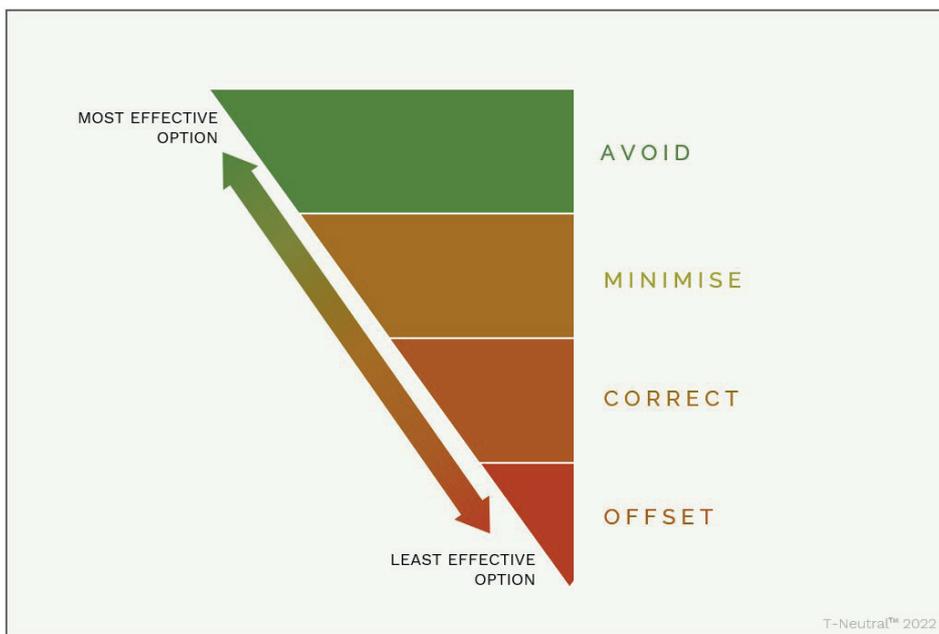


Figure 5: IMPACT MITIGATION HIERARCHY DIAGRAM





### 5.3 INTRODUCTION TO THE TEXTILE FOOTPRINT MITIGATION PRACTICES

Aligning our object of work with the commonly used methodologies above, we have defined a specific scheme of Textile Footprint Mitigation Practices to organise the efforts carried out by producers in a way that facilitates their measurement and monitoring, so they can be properly accounted for in the Textile Footprint metrics to set targets for improvement and encourage their application.

According to the Waste Hierarchy, the best waste is waste that is not generated. The most effective way to avoid or reduce the environmental impact of a good is through prevention work in the design phase. This is stated by the German Federal Environment Agency, which indicates that 80% of the environmental impacts of products are compromised during the design phase<sup>50</sup>, through the adoption of eco-efficiency, eco-design, durability, and recyclability practices. Therefore, opportunities to reduce the Textile Footprint upstream in the value chain should be prioritised over those close to waste management, leaving indirect mitigation actions such as offsetting as a last resort.

It is important to point out, and critical in order to understand the conceptualisation of the Textile Footprint Mitigation Practices matrix as well as this methodology for measuring the Textile Footprint, that the material to be quantified, textile material, is not only the potential waste to be addressed, but is also the core material in the production of the traded goods. Indeed, if we were to follow the mitigation hierarchy to the letter and were thus able to completely avoid its use, both the textile goods themselves and, therefore, the producer's activity would disappear. A priori, this may seem an obvious overstatement, but since we are proposing a measurement method that includes the final goods manufactured as potential polluting material, it is important to note that the mitigation scheme does not aim to eliminate textile products or materials, but rather to be able to offer them in a more resource-efficient way, the desired scenario being the complete circularity of textiles, not their elimination.

Textile Footprint Mitigation Practices are divided into 2 general typologies, within which specific activities are encompassed (Figure 6):

- **Prevention:** actions commonly encompassed in eco-design, aimed at avoiding the generation of unnecessary textile outputs, as well as minimising the impact of those that are impossible to avoid.
- **Correction:** actions aimed at remedying or counteracting the effect caused by textile outputs already incurred that are unavoidable. Remedial measures should be considered in the second instance, always prioritising prevention.

**Figure 6: TEXTILE FOOTPRINT MITIGATION PRACTICES DIAGRAM**



<sup>50</sup> Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, *Ökodesign von Produkten. Gestaltungsauftrag für mehr Umweltschutz und Innovation*, 2005



## 5.3 INTRODUCTION TO THE TEXTILE FOOTPRINT MITIGATION PRACTICES

PREVENT	
 <b>AVOID</b>	<p>Actions aimed at avoiding the generation of unnecessary textile outputs by reducing the use of textiles.</p>
<i>Zero-Waste Oriented Patterning</i>	Design techniques to conceive the garment in such a way that no leftover scraps are produced in the cutting and sewing process.
<i>Digitisation</i>	Digital solutions to minimise or even eliminate the use of textiles in certain processes, such as prototyping or digital sample books.
<i>Degrowth of Productive Intensity</i>	Controlled degrowth in production and commercialisation volumes and frequencies through the revision of the business model.
MINIMISE	
 <b>MINIMISE</b>	<p>Actions to reduce the environmental impact as much as possible, to bring us closer to circularity and to facilitate the treatment at the end of the life cycle of those textile outputs impossible to avoid.</p>
<i>Use of Low-Impact Materials and Techniques</i>	<p>Prioritize the use of fabrics and techniques with verifiable certifications which:</p> <ul style="list-style-type: none"> <li>• Provide a low environmental impact in case of ending up in a landfill (e.g.: biodegradable fabric without harmful toxics).</li> <li>• Contribute to facilitate their treatment (e.g.: recyclable fabric).</li> <li>• Contribute to boosting the circular ecosystem of textiles (e.g.: closed recycling fabric, i.e. coming from recycled textiles).</li> </ul>
<i>Durability</i>	Selection of fabrics and design and manufacturing techniques aimed at maximising the product's useful life.
<i>Traceable and Circular Textile Output Management</i>	Practices aimed at the traceable management of unavoidable pre-consumer outputs, prioritizing those with a circular purpose.
CORRECTION	
 <b>RECOVER</b>	<p>Actions aimed at the traceable collection of discarded post-consumer textiles or at delaying the moment of discarding by extending their useful lifespan.</p>
<i>Collection</i>	Collection of own or generic post-consumer textiles made by the producer or by third parties on their behalf with the objective of their traceable management for reuse or recycling.
<i>Repairing</i>	Repair services of own or generic products performed by the producer or by third parties on their behalf that allow to extend the useful life of the good.
 <b>CONTRIBUTE</b>	<p>Monetary contribution to take responsibility for textile outputs over which control is lost, and have been impossible to prevent or recover.</p>
<i>Mandatory Contribution</i>	Mandatory quota equivalent to post-consumer textile output that occurs in regulated Extended Producer Responsibility systems whereby a producer is obliged to contribute to its local system following the established regulation.
<i>Voluntary Offsetting</i>	Voluntary payment equivalent to the tonnes to be offset, destined to certified textile waste reduction projects. One tonne collected neutralises one tonne outputted.
<i>Contributions Toward Circular Acceleration</i>	Direct funding of initiatives around textile waste that accelerate the circular transition of the textile industry.



### 5.3 INTRODUCTION TO THE TEXTILE FOOTPRINT MITIGATION PRACTICES

It is important to address that not all Textile Footprint Mitigation Practices subtract directly from the textile outputs of a period, and this is due to the logic of the nature of each practice. Using recyclable material does not avoid a textile output (the T-shirt made with such material continues to be introduced into the market and generating pre-consumer textile outputs) while the collection of used clothing can directly subtract as it is textile that has been absorbed from the system, preventing it from ending up in landfills by putting it back into circulation, as long as the management of this collection can be adequately justified by the producer. On the other hand, we also find practices that cause a reduction in outputs from year to year (the integration of digital prototyping techniques, for example), therefore they will only be quantifiable if there is an evolutionary analysis of the Textile Footprint. For this reason, different metrics emanate from the calculation of the Textile Footprint that help us quantify and visualise the progress and impact of the mitigation practices that contribute to an improvement in circularity, vital to set targets around “how much”, “where”, and “how”. In future versions of this methodology, the quantification of those practices oriented to the use of materials according to their composition and origin will be further developed.

**Note:** It is important to emphasise that in the development of this methodology a very precise exercise has been carried out to understand each action performed by the producer and how they affect the Textile Footprint in a transparent, measurable and impartial way. This thorough analysis of Textile Footprint Mitigation Practices is the result of a strong commitment to avoid arbitrary weightings or assessments not based on verifiable robust data. The objective of this transparency and impartiality exercise is to ensure a universal and objective methodology. Bonus systems for good practices can only be built on transparent unbiased data if so desired by the producers themselves, private or even public organisations, but these must always remain independent of the measurement system.

## 5.4. Introduction to Traceability

The measurement of the Textile Footprint not only quantifies the quantities of textile outputted (the “how much”) but also functions as a traceability map to identify its whereabouts (the “where”) to properly establish the chain of responsibility, detect leakage points of untraceable discarded textile, areas of opportunity and even help to better select third parties that can improve the level of traceability.

The proposed traceability mapping is based on 2 parameters: Destination and Purpose. Destination is the place or third party to which the textile is transferred, be it the textile outputs incurred or those recovered in the case of implementing used clothing collection mitigation practices. This Destination is to be declared by the producer ideally with appropriate documentation to support it. This declaration of the Destination of the textile outputs is the so-called Declared Destination, i.e. the one established by the producer at the time of measuring the Textile Footprint.

A more granular classification of the different Destinations into specific paths is provided in the Textile Footprint assessment process, in order to cover the different casuistry that can occur in this area, while at the same time doing so in a synthetic way to facilitate the work of quantification, calculation, and analysis.

Future versions of this methodology will provide depth to the vertical traceability as well as introduce the Purpose variable with its consequent link to the waste management hierarchy.



## 5. 5. Introduction to Textile Footprint Metrics and Basic Accounting Principles

The Textile Footprint methodology results in a series of metrics designed to be useful to the producer in their decision making and strategy development in order to reduce and mitigate textile outputs by prioritising prevention over correction, as well as working towards full traceability and improving circularity via the organisation of information based on reliable and action-oriented data.

The main metrics illustrate for each Textile Output Source the amount outputted, the mitigation practices carried out, as well as the different destinations.

From all of the above we obtain specific and exhaustive quantity metrics as well as a complete traceability map, from which we extract for this document the main metrics of the Textile Footprint: the Gross Textile Footprint and the Net Textile Footprint:

### Gross Textile Footprint

The sum of Pre-Consumer Textile Outputs and Post-Consumer Textile Outputs, i.e. the total tonnes of textiles resulting from a period of activity.

$$\text{Gross Textile Footprint } [t] = \Sigma \text{TO}_{\text{ATOS}}[t]$$

Where:

$\Sigma \text{TO}_{\text{ATOS}}$  = Sum of Textile Outputs from each Applicable Textile Output Source (both Pre-Consumer and Post-Consumer) in tonnes.

[t] = reference time period of calculation.

### Net Textile Footprint

Gross Textile Footprint net of applicable mitigation practices as well as textile stored and transferred as a traceable resource, i.e. the total tonnes of leaked textile over which a producer eventually loses control in a period of activity for which they should ideally be held accountable through offsetting practices to achieve neutrality.

$$\text{Net Textile Footprint } [t] = \Sigma \text{TO}_{\text{ATOS}}[t] - \Sigma \text{VD}_{\text{ATOS}}[t] - \Sigma \text{VMP}_{\text{AMP}}[t]$$

Where:

$\Sigma \text{TO}_{\text{TOS}}$  = Sum of Textile Outputs from each Applicable Textile Output Source (both Pre-Consumer and Post-Consumer) in tonnes.

$\Sigma \text{VD}_{\text{ATOS}}$  = Sum of Verified Destinations from each Applicable Textile Output Source.

$\Sigma \text{VMP}_{\text{AMP}}$  = Sum of Verified Mitigation Practices from each Applicable Mitigation Practice.

[t] = reference time period of calculation.



## Cross-Sectional Principles for Calculating the Textile Footprint

In summary, in order to ensure an adequate quality of information when reporting data and calculating metrics, it is necessary to consider a series of transversal principles that we consider desirable in any calculation exercise by a producer, and that we assume as mandatory when the certification of the Textile Footprint is carried out through the T\_NEUTRAL Platform:

### Sources and Quality of Data

In order to carry out the calculation of the Textile Footprint, it is necessary to have relevant, reliable and up-to-date data and documentation. In order to establish a minimum criteria for the data that can be used in the practice of this methodology, we have taken existing and widely adopted theoretical frameworks as a reference in order to facilitate the selection exercise by the producer, and provide the ability to build upon the requirements of any subsequent assessment of the quality of data, as well as those of the independent validation process in line with current standards and consensus guidelines:

- » ISO 14044 (2006) LCA<sup>51</sup>
- » ILCD Handbook (2016)<sup>52</sup>
- » ISO/DIS 14067 (2018): Carbon Footprint of a Product<sup>53</sup>

### Transparency, Truthfulness and Information Ownership

As the measurement of the Textile Footprint is a voluntary exercise, it is assumed and expected in all cases that the producers carry out their measurements with real and verifiable data. This means that the declaration of outputs and mitigation practices verifiably corresponds to the scope indicated and the quantities correspond to the reality of the producer's activity. It is advisable to attach or have easily available supporting documentation, even if it is for internal accountability only and no external verification of the measurement is to be carried out.

### Active Learning Principle

This methodology is an innovative, disruptive and pioneering proposal. In this sense, and true to T\_NEUTRAL's contributive spirit, it is assumed that it will be subject to constant revision and updating to ensure the maximum possible representativeness, accessibility and effectiveness. In this way, the methodology will be subject to periodic validation by an external technical committee designed by T\_NEUTRAL for this purpose and with representation of the main stakeholders, as well as being open to comments from different interest groups.

<sup>51</sup> ISO, *ISO 14044:2006, Environmental Management (Life Cycle Assessment) Requirements and Guidelines*, 2006.

<sup>52</sup> European Commission, Joint Research Centre, Institute for Environment and Sustainability, *International Reference Life Cycle Data System (ILCD) Handbook - Nomenclature and Other Conventions*, Luxemburg, 2010.

<sup>53</sup> ISO, *ISO 14067:2018 Greenhouse Gases (Carbon Footprint of Products) Requirements and Guidelines for Quantification*, 2018.

<sup>54</sup> European Commission, *PEF Methodology, Final Draft, 5.6 Data Quality Requirement*, July 2012



## 6. Conclusion

This document, as a short extract of the Textile Footprint methodology, aims to provide a first conceptual basis for the quantification and traceability of textile outputs along the supply chain of a textile producer. It is the first and most important step in the construction of a Measure-Reduce-Offset transition model towards circularity, with the aim of **encouraging textile producers to take control and responsibility of their Textile Footprint** by providing them with the correct information to accelerate their circular transformation, and with them that of the sector, in order to reach a horizon free of textile waste.