

# Tackling hazardous chemicals, a “must have” for the challenge of shifting to a Slow Circular Economy

**The case of fashion shows we have proven solutions for hazardous chemicals, but slowing down material intensity is the bigger challenge**

## Introduction

Following the adoption of the EU REACH regulation in 2006, Greenpeace campaigns targeted industrial sectors on their hazardous chemical use, and for the huge quantities of end-of-life products, exported and dumped in the Global South. First we highlighted the electronics sector, with the Greener Electronics campaign, and secondly the fashion industry, with the Detox My Fashion campaign, starting in 2011.

With Detox My Fashion, Greenpeace shifted the focus of major brands away from the single issue of product safety for consumers in the North, to the origin of the hazardous chemical problem in the supply chains of major brands in the Global South, particularly East Asia, SEAsia and Mexico. We revealed the huge problem of hazardous chemicals being discharged into waterways from suppliers, which until then had stayed under the radar, despite decades of self-regulation and the claims of corporate responsibility programmes, also circumventing EU regulation. The campaign achieved a paradigm shift away from this focus on the final product and engaged large brands from the fashion, sportswear,

luxury, outdoor and multiple retail sectors, to commit to an ambitious Detox Commitment which included a precautionary list of hazardous chemicals to be banned (MRSL), strict limits for wastewater discharges and full transparency of wastewater data and suppliers lists.

Both the Greener Electronics campaign and Detox My Fashion also pushed for Extended Producer Responsibility (EPR) to consider the whole life cycle of these products and especially the growing waste problem at the end of life phase. The practice of exporting the e-waste problems of leading economies to Global South countries was exposed in the 2000s and 2010s, with open burning of electronics and even children dismantling the scraps. More recently, clothing and textiles waste has joined the wave of e-waste and also disposable plastic, fuelled by overproduction and overconsumption.

At the global conference international ministerial conference on chemicals, between Sept 25-29th 2023 in Bonn,<sup>1</sup> hosted by the German government, decisions will be taken to set up a global agreement on chemicals with targets for industrial sectors. These

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<sup>1</sup> Global Chemicals Conference (ICCM5, the fifth session of the International Conference on Chemicals Management) in September 2023, in Bonn.

decisions need to ensure that producers take responsibility for the whole life cycle of resources – from raw materials, to production, products and waste – and start the necessary **transition to a slow and circular economy**.

## What needs to be achieved on hazardous chemicals?

**While the great planetary climate and biodiversity crises are widely known – [a third crisis of chemicals](#) has recently been proposed,<sup>2</sup> which identifies chemicals as the [third driver of biodiversity loss](#), ahead of climate change. This dramatically increases the urgency of taking effective action on hazardous chemicals for all sectors.**

There is much to be learnt from the methods developed by Greenpeace during its Detox My Fashion campaign to achieve zero discharges of hazardous chemicals into waterways from textiles, set out in our 2018 report [Destination Zero](#) and updated in 2021 in [Self Regulation a Fashion Fairytale](#), that have been widely adopted by over 80 clothing brands and suppliers<sup>3</sup> and proven to work. Therefore Greenpeace is calling for the **implementation of Precautionary action on chemicals** in the wider clothing and textiles industry, and for this approach to be used for the other chemical intensive sectors included in the global conference on chemicals.

Brands and suppliers implementing Detox made a public **commitment to Detox**, including an individual action plan with an ambitious timeline to eliminate the use and discharge of all hazardous substances, also to allow safe reuse and recycling,

and the publication of a supplier's list beyond Tier 1 and including at least wet processing suppliers.

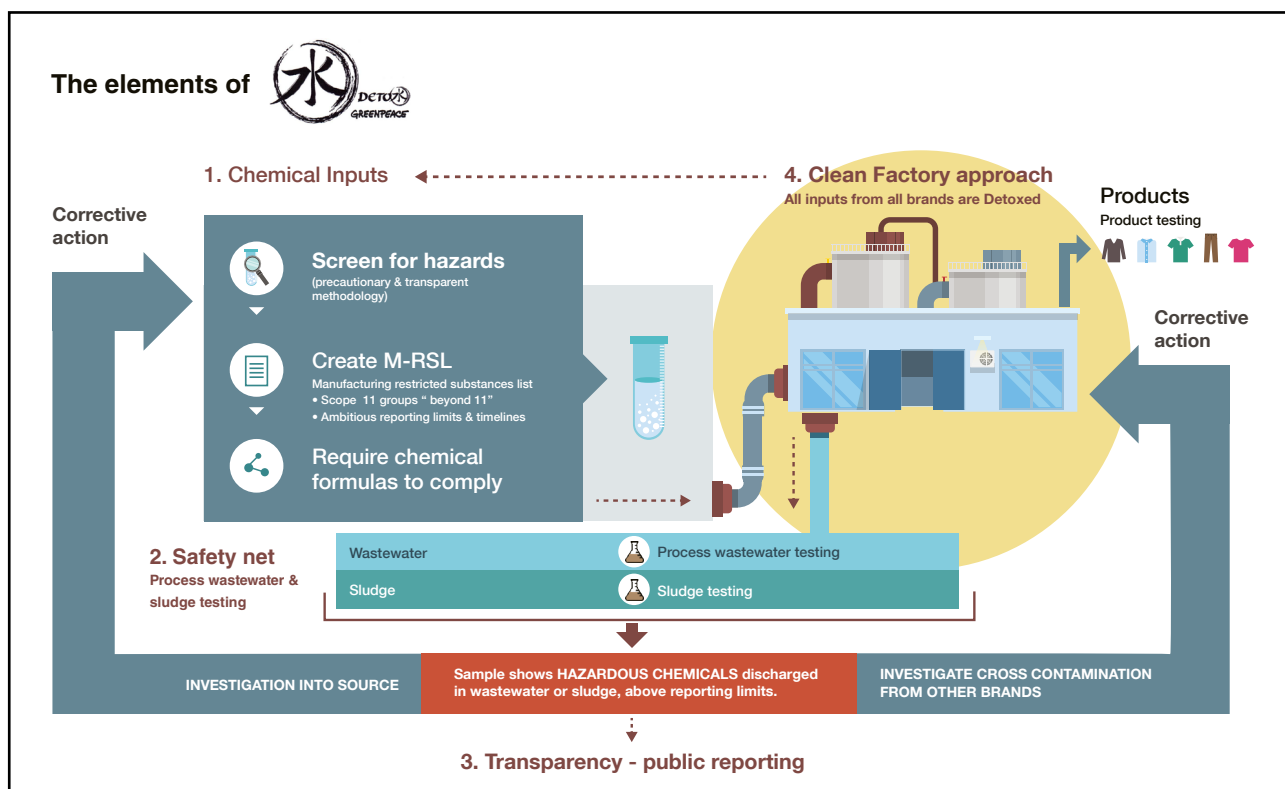
The methodology of these Detox Commitments, which was firmly rooted in the Precautionary Principle, covered four key areas, as detailed in [Destination Zero](#) Annex 1 (and summarised in The Elements of Detox diagram below):

- 1. Eliminating hazards in chemical inputs:** selecting chemicals for immediate restriction using a credible and transparent hazard screening methodology, to build a Manufacturing Restricted Substances Lists (MRSL). For each chemical, the MRSL should aim to achieve the **lowest detection limits** for both inputs and relevant emissions such as wastewater. The MRSL should also specify timelines to phase-out substances of concern if their elimination cannot be achieved immediately, with regular reviews of detection limits; it is a living document that reflects state-of-the-art techniques, progress of scientific knowledge and the concerns of civil society.
- 2. Testing process wastewater and sludge:** a “safety net” to check for the use of hazardous chemicals against the limits set in the MRSL. Detection should **trigger an investigation** into the likely source.
- 3. Committing to Transparency / Public Right to Know:** global citizens have a fundamental ‘Right to Know’ which hazardous chemicals are being used and discharged into the environment and where precisely this is happening (at which local facility and in which products). This requires brands to ensure the regular publication of information on the discharge of hazardous chemicals from

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<sup>2</sup> Linn Persson et.al. (2022) Outside the Safe Operating Space of the Planetary Boundary for Novel Entities, Environ. Sci. Technol. 2022, 56, 3, 1510–1521, Publication Date: January 18, 2022  
<https://doi.org/10.1021/acs.est.1c04158>

<sup>3</sup> Companies which have committed to Detox are: 19 global fashion and sportswear brands, 7 multiple retailers (5 based in Germany, 1 in Switzerland and the most recent addition is Tesco based in the UK), 3 outdoor brands, and a number of suppliers, mostly made up from a collaboration of textiles companies in Italy (Italian Detox Consortium). For a full list see Destination Zero pages 22 – 25



facilities in their supply chains, on a online platform<sup>4</sup> or their own website, that can be easily accessed by local communities, the general public and public interest organisations. **Traceability** of the supply chain that manufactured the product should be enabled through an individual product label.

4. Endorsing a **Clean Factory Approach** to chemicals management in the whole factory, to ensure that the same high standard of chemicals management is implemented on all production lines (and by all brands using the facility) to prevent potential sources of contamination and drive effective environmental improvement in the Global South.

As a result of this comprehensive approach to precautionary chemicals management, driven by

commitments to Detox, players in the clothing sector offer the best recent examples of effective action on hazardous chemicals. Leading companies and several industry stakeholders are taking responsibility for not only securing the 2020 goal but also promoting it to the entire textile sector (for example the [ZDHC Foundation](#), the group of textiles suppliers in Italy ([Detox Consortium \(CID\)](#)), or service providers such as [OEKO-TEX](#) and [Bluesign](#)). There are also individual company initiatives such as Utenos Triko-tazas and suppliers for Greenpeace's own textiles procurement.<sup>5</sup>

The trend towards zero discharge is continuing, as assessed by Greenpeace Germany in 2021,<sup>6</sup> and many Detox brands have managed to eliminate hazardous chemicals from over 90% of their facilities, including priority chemical groups such as APEOs, PFCs (PFAS), and phthalates, and their use in products.

<sup>4</sup> Brands can ensure that their suppliers in China publish their wastewater data either on the public platform of the Institute for Public & Environmental Affairs (IPE). IPE also publishes a Green Supply chain map which includes wastewater data from clothing brands, including some which are not Detox committed or members of the ZDHC, and other data from brands from other sectors. As of September 2023, the ZDHC platform Detox Live reports the compliance of 7416 suppliers globally with its wastewater guidelines and MRSL: 14 brands also connect this supply chain data to their brand.

<sup>5</sup> See Utenos Sustainability Certificates and Remei myTrace for Utenos, Lithuania, Remei my trace for India and India supply chain, Earth Positive, India supply chain

<sup>6</sup> Greenpeace Germany (2021), Self regulation: a fashion fairytale, Parts I & II, 23rd November 2021; <https://www.greenpeace.org/international/publication/50922/self-regulation-fashion-supply-chain-fairytale/>

For PFCs this included a commitment by GORE-TEX, the market leader in weatherproofing, which resulted in a complete phase out of PFCs announced in 2021.<sup>7</sup> The momentum continues with successful campaigns by US NGOs achieving commitments to eliminate use of PFCs by US brands and the recent adoption of regulation in some States.<sup>8</sup> Investors have also applied pressure on chemical companies to end production of these “forever chemicals”.<sup>9</sup> Nevertheless, the brands that committed to Detox don’t represent the whole market, and other brands are continuing to use PFCs and other hazardous chemicals in the meantime.

## Why the Detox approach needs mandatory regulation

We can therefore see that this semi-voluntary approach can work, but it can only go so far. Following the pressure of Greenpeace’s successful [Detox My Fashion](#) campaign, the global brands that were targeted are cleaning up their supply chains to tackle the huge problem of water pollution with hazardous chemicals that we revealed in 2011.<sup>10</sup> The ZDHC and others are extending the availability of their tools and methodologies to eliminate hazardous chemicals to other fashion and textile companies. But a significant majority of fashion brands still use waterways in the Global South as a convenient dumping ground for their hazardous chemicals.

Without a level playing field, there will always be companies who will do nothing unless they are required to by regulation.<sup>11</sup> And if the regulations that do exist are not enforced, they will take advantage of this too.

Regulation is therefore needed, to make toxic free production mandatory through supply chain responsibility legislation, to force the rest of the industry to follow the Detox brands’ example.

The Detox approach can also be applied to other sectors, following the principles and practices set out above:

- adoption of sectoral MRSLs based on precaution,
- action plans with credible timelines and regular reporting,
- and transparency of emission data and suppliers’ lists, at least including manufacturing.

We therefore need a **strong agreement for a global framework on chemicals**, encompassing the whole life cycle of industrial sectors, which will help to guide the direction for national and regional regulation.

## From Fast Fashion – to a Slow Circular Economy

The Detox approach is a source of inspiration and provides a credible baseline for challenging the bigger problem: the linear business model of the fashion industry, its chemical and material intensity, and the associated human, social and environmental impacts. Extended Producer Responsibility (EPR) regulation is urgently needed to slow the flow of materials, implement the polluter pays principle, and move away from reliance on fossil fuels both for energy and for sourcing raw materials.

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<sup>7</sup> Greenpeace International (2021), Gore Fabrics announces major transition in its product technology – Greenpeace response, 21st September 2021; <https://www.greenpeace.org/international/press-release/49771/gore-fabrics-announces-major-transition-in-its-product-technology-greenpeace-response/> <sup>8</sup> Toxic Free Future, PFAS “Forever Chemicals” in clothing and home textiles, website; <https://toxicfreefuture.org/key-project/pfas-forever-chemicals-in-clothing-and-home-textiles/>

<sup>9</sup> Tom Perkins in the Guardian (2023), Investors pressure top firms to halt production of toxic ‘forever chemicals’, 6th January 2023; <https://www.theguardian.com/environment/2023/jan/06/pfas-toxic-forever-chemicals-manufacturers>

<sup>10</sup> Greenpeace International (2018), Destination Zero: seven years of Detoxing the clothing industry, 12th July 2018; <https://www.greenpeace.org/international/publication/17612/destination-zero/> updated in:

Greenpeace Germany (2021), Self regulation: a fashion fairytale, op.cit.

<sup>11</sup> Greenpeace Germany (2021), Self Regulation: a fashion fairytale. op.cit.

## Impacts of the linear fast fashion business model

The fast fashion business model is notorious for the huge volumes of clothes that are produced, the speed they are brought to market, and for stories of outsize environmental and social impacts. The most visible of these is the vast quantity of polluting textile waste increasingly making its way to Africa and other Global South countries, as recently revealed by Greenpeace Germany.<sup>12</sup> While credible attempts to change the business model are thin on the ground, there's no shortage of 'sustainability' or 'circularity' initiatives, which are mostly not a serious attempt to address the problem<sup>13</sup> – and are increasingly being proven as greenwashing. It's hard to imagine how fast fashion could get worse, yet this is already happening. The latest phenomenon – ultra fast fashion<sup>14</sup> – championed by the Chinese online fashion brand SHEIN but with other players also

rushing to join this trend, has taken the fast fashion business model beyond the extreme. This new evolution of fast fashion forces suppliers to deliver at breakneck speed, with orders made in China within 3-7 days<sup>15</sup> and delivered direct to customers around the world by air freight. It's a business model built around the exploitation of the environment and people, which relies on the lack of enforcement of regulations designed to protect the environment – and the health and safety of workers and consumers – routinely crossing the red line of regulation. The fashion industry is responsible for up to 10% of global greenhouse gas emissions<sup>16</sup> and is even failing to meet its own greenhouse gas (GHG) commitments.<sup>17</sup> The growth of fashion depends on fossil-fuel based plastic fibres, mainly polyester: synthetic fibres made up about 64 percent of the volume of global textiles in 2021, and are projected to continue growing.<sup>18</sup> Fashion is also a major cause of water pollution worldwide,<sup>19</sup>

<sup>12</sup> Greenpeace Germany (2022), Poisoned Gifts: from donations to the dumpsite: textiles waste disguised as second hand clothes exported to East Africa, April 2022; <https://www.greenpeace.org/static/planet4-international-state-less/2022/04/9f50d3de-greenpeace-germany-poisoned-fast-fashion-briefing-factsheet-april-2022.pdf>

<sup>13</sup> Greenpeace Germany (2021), Self Regulation: a fashion fairytale, op.cit.

<sup>14</sup> The Guardian (2022), Ultra-fast fashion is taking over – and using every trick in the book to get us addicted, 18th April 2022; <https://www.theguardian.com/commentisfree/2022/apr/18/ultra-fast-fashion-retail-sites-shein>

<sup>15</sup> Public Eye (2021): Toiling away for Shein, Looking behind the shiny façade of the Chinese “ultra-fast fashion” giant, November 2021; <https://stories.publiceye.ch/en/shein/> and Deutsche Welle (2022): Shein: Fast fashion destroys the environment, February 2022 (in German); <https://www.dw.com/de/shein-fast-fashion-zerst%C3%B6rt-die-umwelt/av-60620327>

<sup>16</sup> Ellen McArthur Foundation (2017), A new textiles economy: Redesigning fashion's future; <https://ellenmacarthurfoundation.org/a-new-textiles-economy>

<sup>17</sup> StandEarth (2021), Are fashion brands on track to meet the 1.5C emissions pathway? 28th October 2021; <https://stand.earth/insights/are-fashion-brands-on-track-to-meet-the-1-5c-emissions-pathway/>

<sup>18</sup> Statista, Distribution of textile fibers production worldwide in 2021, by type; <https://www.statista.com/statistics/1250812/global-fiber-production-share-type/>

Synthetics are expected to grow, see Business Wire (2022), Global Synthetic Fiber Market Report 2022: Rising Adoption of Polyester Fiber & Expansion of the Textile Industry Drive Growth, 22nd September 2022; <https://www.businesswire.com/news/home/20220922005495/en/Global-Synthetic-Fiber-Market-Report-2022-Rising-Adoption-of-Polyester-Fiber-Expansion-of-the-Textile-Industry-Drive-Growth---ResearchAndMarkets.com>

<sup>19</sup> European Topic Centre on Waste and Materials in a Green Economy (2019), Textiles and the environment in a circular economy, November 2019; [https://ecodesign-centres.org/wp-content/uploads/2020/03/ETC\\_report\\_textiles-and-the-environment-in-a-circular-economy.pdf](https://ecodesign-centres.org/wp-content/uploads/2020/03/ETC_report_textiles-and-the-environment-in-a-circular-economy.pdf)

<sup>19</sup> European Environment Agency (2019), Private consumption: Textiles EU's fourth largest cause of environmental pressures after food, housing, transport, November 2019; <https://www.eea.europa.eu/highlights/private-consumption-textiles-eus-fourth-1>

with over 80% of its supply chain impacts on the environment taking place in Global South countries where the overwhelming majority of clothes are manufactured.<sup>20</sup> When GHG emissions from supply chains of all sectors in the EU are considered, fashion is the third largest single sector, responsible for >5% of global supply chain emissions, behind food and construction.<sup>21</sup> To add to the chemical pollution, clothes are a major source of microfibres to the environment, which include the non-degradable microplastic fibres.<sup>22</sup>

The flood of clothes being dumped in African and Latin American countries is a symptom of the worsening problem of ever faster turnover and volumes of products, and increasing 'disposability' mind-sets.<sup>23</sup> **Turning such excesses of waste into a circular system is impossible**, despite the claims of large fashion brands; although there are numerous creative initiatives by people at the receiving end of fashion waste to make use of these old clothes and give them a second life, this can only deal with a small part of the problem. The scale and speed of Fast Fashion shows how overproduction and overconsumption is not only an ongoing disaster at the end of

life, but amplifies the negative impacts of clothing at all stages of their life cycle – especially impacts in the supply chain, including tragedies such as the [Rana Plaza disaster](#).

An alternative to the better known “Circular Economy”, the **Slow Circular Economy** prioritises the more fundamental problem of overproduction and overconsumption – which is driving the environmental and social crises while concentrating profits and wealth at the top. The umbrella concept of the Circular Economy<sup>24</sup> aims to lower material input and minimise waste generation, in contrast to the dominant linear economy, which has a ‘take, make, dispose’ model of production.

**Precautionary action on hazardous chemicals is also a prerequisite** for the Circular Economy - because their use and their presence in products prevents reuse and recycling. The current framing of the Circular Economy does not give this sufficient priority. It also focuses on material efficiency, without considering the larger scale of the problem. As a result, studies show that the mitigating effect of Circular Economy initiatives remains rather marginal when compared to the impact of economic growth.<sup>25</sup> **Any benefits from the greater efficiencies of circularity have so far been completely**

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<sup>20</sup> European Environment Agency (2019), Private consumption: Textiles EU's fourth largest cause of environmental pressures after food, housing, transport, November 2019; <https://www.eea.europa.eu/highlights/private-consumption-textiles-eus-fourth-1>

<sup>21</sup> World Economic Forum/Boston Consulting Group (2021), Net-zero challenge: the supply chain opportunity; [https://www3.weforum.org/docs/WEF\\_Net\\_Zero\\_Challenge\\_The\\_Supply\\_Chain\\_Opportunity\\_2021.pdf](https://www3.weforum.org/docs/WEF_Net_Zero_Challenge_The_Supply_Chain_Opportunity_2021.pdf)

<sup>22</sup> European Parliament (2021), The impact of textile production and waste on the environment (infographic); <https://www.europarl.europa.eu/news/en/headlines/society/202108STO93327/the-impact-of-textile-production-and-waste-on-the-environment-infographic>

<sup>23</sup> Greenpeace Germany (2022), Poisoned Gifts: From donations to the dumpsite: textiles waste disguised as second-hand clothes exported to East Africa, Greenpeace Germany, April 2022; <https://www.greenpeace.org/international/publication/53355/poisoned-gifts-report-fast-fashion-textile-waste-disguised-as-second-hand-clothes-exported-to-east-africa/>

<sup>24</sup> The Circular Economy is an unclear concept with no agreed definition. According to the Ellen McArthur Foundation, the Circular Economy is based on three principles, driven by design:

- Eliminate waste and pollution
- Circulate products and materials (at their highest value)
- Regenerate nature;

<https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview>

<sup>25</sup> GBianchi, M. Cordello, M. (2023), Does circular economy mitigate the extraction of natural resources? Empirical evidence based on analysis of 28 European economies over the past decade

Ecological Economics, Volume 203, January 2023, 107607; <https://doi.org/10.1016/j.ecolecon.2022.107607>. Also see: Scientific American (2021), The delusion of economic growth; <https://www.scientificamerican.com/article/the-delusion-of-infinite-economic-growth/>



**outweighed** by the continued growth in production and overconsumption. Instead, corporations have co-opted the circularity narrative itself, along with other broad terms like “sustainability”, to **green-wash** their actions on recycling and recyclability, and promote the continued sale of poor quality consumer products that are destined for landfill.<sup>26</sup> This only adds to the compounded problems imposed on the Global South by extractivism,<sup>27</sup> outsourced production and consumerism.

The Slow Circular economy prioritises **business model change** – by redefining the purpose of business so that profits for shareholders are not the priority (see Characteristics of a Slow Circular Economy below). Instead, value flows within a Slow Circular Economy remain within the organisations or communities that create them and help fund the positive social and environmental change we need, creating a circular economy of wealth in service of the common good.

**Therefore, we need a global agreement to address the hazardous chemicals problem and the whole life cycle of production and products for any sector, which should be framed within the context of progressing towards a Slow Circular Economy.**

## Characteristics of a Slow Circular Economy

The **Slow Circular Economy**,<sup>28</sup> emphasises that slowing down is a prerequisite for a Circular Economy to work.

This originated from the recognition that we need to

**slow the flow**<sup>29</sup> of products, components and their production, and minimise the impacts on the environment from the entire life-cycle of resources and materials, for example, through:

### Changing mindsets

- Stopping overproduction and the promotion of the overconsumption mindset.
- Challenging overconsumption by consumers
- Recognising that more inclusive and sustainable practices already exist, particularly in the global majority.

Preventing and minimising impacts at each stage of a product or component's life cycle, including sourcing of raw materials, production, remanufacturing and recycling.

- Reducing resource extraction and material input,
- A precautionary approach to the elimination of the [use and emission of hazardous chemicals](#) and waste generation.
- Using energy efficiency and renewable energy to eliminate greenhouse gas emissions.
- Reducing the speed of production and delivery.
- Improving the social wellbeing of workers and local communities (wages, working conditions and quality of community life).
- Localisation of materials sourcing and production, where this improves the environmental impact.

### Mindful and ecological design of products

- Question the need for new products, encourage innovation for design purposes, not driven by

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<sup>26</sup> Greenpeace Germany (2023), Greenwash Danger Zone, 10 years after Rana Plaza fashion labels conceal a broken system, 24th April 2024; [https://www.greenpeace.de/publikationen/Greenpeace\\_Report\\_Greenwash\\_Danger\\_Zone.pdf](https://www.greenpeace.de/publikationen/Greenpeace_Report_Greenwash_Danger_Zone.pdf) and <https://www.greenpeace.org/international/story/59440/enough-circularity-greenwash-slow-fashion-is-the-way-forward/>

<sup>27</sup> Activities which remove large quantities of natural resources that are not processed (or processed only to a limited degree), especially for export. Extractivism is not limited to minerals or oil. Extractivism is also present in farming, forestry and even fishing. [https://www.tni.org/files/download/beyonddevelopment\\_extractivism.pdf](https://www.tni.org/files/download/beyonddevelopment_extractivism.pdf)

<sup>28</sup> Greenpeace International (2020), Slowing the circular economy, Paula Tejon Carbaral, 17th July 2020; <https://www.greenpeace.org/international/story/44079/slowng-the-circular-economy/>

<sup>29</sup> Originally outlined in relation to fashion, by the Greenpeace International report Fashion at the Crossroads (2017); <https://www.greenpeace.org/international/press-release/7517/new-report-breaks-the-myth-of-fast-fashions-so-called-circular-economy-greenpeace/>

marketing

- A ban on “planned obsolescence”,<sup>30</sup> the deliberate design and marketing of products with unnecessarily short lifetimes.
- Design should be simple, created with common tools and thus, easy to understand and repair.
- Design good quality products for longevity and extended use, including emotional durability, to – which are durable, repairable, reusable, refurbishable –, along with reversible and modular design to enable different uses and easier repair.
- Design for recycling and zero waste, considering the material mix, its recyclability, and the end of the product’s life, including its environmental impact from improper disposal.

The systems to facilitate the above, including:

- open source information and standards to enable repair and spread innovation, freely available, accessible, and in editable formats to enable people to remix, add, build upon, learn and improve.
- shared under open licences to enable legal decentralised collaboration and enable the right to fix and the access to repair tutorials or spare parts.
- Services such as repair, refurbishing, and spare parts provision, resale of used products and take-back for products that no longer function, for dismantling and recovery of materials.

This results in less waste and pollution in supply chains, people use products for longer – creating an economy of care and repair – and the purchase of new products is reduced, which in turn leads to less post-consumer waste and makes it possible to **close the loop**.

**Closing the loop** happens when any linear flows of waste that remain are turned into secondary resources, through designing products and systems with reuse and recycling in mind, such as mono materials, durable and reusable products, recyclable materials, products that can be dismantled and take-back systems to enable this.

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<sup>30</sup> Greenpeace International (2019), It’s a waste world, Rex Weyler, 28th July 2019; <https://www.greenpeace.org/international/story/23747/its-a-waste-world/>