THE FOUR ELEMENTS OF FASHION

Edited by
Anneke Smelik and Alessandra Vaccari

I U A V

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The *Four Elements of Fashion* brings together international scholars to rethink fashion through the prism of the archetypal elements of earth, water, air, and fire. Emerging from a conference held at the Università Iuav di Venezia and curated by Anneke Smelik and Alessandra Vaccari, the volume offers a new perspective on fashion studies at a time of profound ecological and cultural change. The Book aims to investigate new paradigms of fashion cultures through those elements of matter as they are intertwined in the clothes we wear. The research papers shift the attention towards the material and sensory aspects of fashion. This approach fits in with the 'material turn', inspired by a re-centring of matter and the materiality of things, objects, technologies, and bodies. In readdressing fashion and its histories through the lens of new materialism, the authors envision possible future fashions in multiple ways: from contributing to an environmentally and socially aware fashion to disseminating good practices in the field of fashion design.

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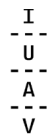

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time and constructive comments, helping to improve the manuscript.

3 · 7 SHIFTING TO CARE

DURABILITY PROCESSES AND PRACTICES OF USE OF THE ANTHROPOGENIC MASS

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1. INTRODUCTION AND RESEARCH ISSUE

Today, we face enormous challenges related to the aggressive phenomenon of global warming. Having set climate change in irreversible motion, we are facing the possibility of ecological catastrophe. As Morton (2013) discussed, climate change is perhaps the most dramatic example of hyperobjects consequences. Concepts such as world, nature, and even environment are no longer meaningful horizons against which human events take place. Still, they are now entities that put tangible limits on our common ways of reasoning. In light of modern indeterminacy and sudden emergencies linked to climate change due to the globalization phenomena of an increasingly anthropocentric system, industry at large is reconsidering its unsustainable systems. In this context, fashion companies are in a moment of crucial change in their sustainable vocations: Undergoing sustainability processes to lessen their planetary impact (Dhir, 2022; Arrigo, 2021).

As the Ellen Mcarthur Foundation (2017) discussed, fashion is one of the industries with the greatest ecological impact. Its processes are found to be highly invasive, especially those involving environmental aspects and exploiting the limited resources of our planet (European Commission, 2022). Such productive processes consume indeed large amounts of water, exploit land, and contribute to emissions.

As a major water user, the fashion system consumes 93 billion cubic meters of water annually (Ellen Macarthur Foundation, 2017). The textile treatment and dyeing processes are estimated to be responsible for about 20% of global clean water pollution. Furthermore, laundering synthetic clothes accounts for 35% of primary microplastics released into the environment. Washing synthetics releases an estimated 0.5 million tonnes of microfibres annually into the ocean (European Parliament, 2022). Also, specific cultivation for this industry, such as cotton, needs water

to grow. Around 9,700 liters are required to produce just 1kg of cotton (House of Commons Environmental Audit Committee, 2019). This generates enormous pressure on this resource and has significant ecological consequences. One example is the desertification of the Aral Sea, where cotton production has entirely dried up the water (Hoskins, 2014).

Soil is another critical element of our ecosystem. Healthy soil ensures the production of food but also the absorption of CO2. The fashion industry plays a major role in soil degradation in several ways: First, by overloading pastures with cashmere goats and sheep bred for their wool; second, by degrading the soil through the massive use of chemicals to grow its raw materials; and third, by causing deforestation with wood-based fibers such as rayon. Massive global soil degradation is a major environmental problem to address. It seriously threatens global food security and contributes to global warming. Furthermore, the global fashion industry generates many greenhouse gases due to the energy used during the production, manufacturing, and transportation of the million garments purchased yearly. As discussed by Masson-Delmotte et al. (2021), the climate change phenomena are one of the results of such increased greenhouse gas emissions. Indeed, the resulting global warming is the climate system's response to warming produced by human operations. Both the fashion complex supply chain, usually located in developing countries, and its energy-intensive production generate 1.2 billion tonnes of CO2 equivalent. UNFCCC (2018) reported that this is almost 10% of world GHG emissions.

The discussed impacts are the direct results of the development model based on the linear economy that is adopted by the fashion sector (Dissanayake & Weerasinghe, 2021). This model has supported a growing consumer demand that the proliferation of the fast fashion business model has exacerbated. Maintaining this model requires substantial exploitation of natural resources. According to the Ellen

Mac Arthur Foundation (2017), the fashion industry will account for about 25 percent of the global carbon budget by 2050. Specifically, to meet the growth of the linear development model, more consumption of natural resources will be needed, leading to increased ecological degradation and climate change (Berg et al., 2021). ,The result of such a development model is an overproduction of material output of human activities, the human-made mass. Evidence of this is the fact that fiber production almost doubled between 2010 and 2020. Globally, it went from 58 million to 109 million tons (Textile Exchange, 2021).

In the Anthropocene context, we referred to such mass as *anthropogenic mass* (Elhacham et al., 2020). In the scenario presented, the evolution of human-environment interactions is connected to the development of international fashion economies. The industry needs to reimagine its way of thinking to initiate an understanding of the world through how changes in clothing production and consumption patterns have affected environmental systems by shifting to design-led care practices for resources enhancing durability.

2. METHODOLOGY

According to the authors' investigation, a mapping of European Fashion companies' materials/resources take-care practices is carried out through an iterative process to model the data.
Methodologically, an initial desk research phase is followed by applying a case study methodology to narrow the selected research scope into defined topics, and the last phase combines all the data to outline the study interpretative model. This process has enabled the identification of ecological approaches – specifically for preserving virgin resources, regenerating, reusing, and manipulating secondarymaterials extracted from the anthropogenic mass. They inform the study: understanding current industry strategies

to activate design-driven actions that target the generation and potential use of various types of leftover fabrics and deadstock from garment production; and implementing sustainability by offering an alternative to consumption itself through the retention of those resources that are already processed/owned towards durability.

The desk research was further deepened and developed with data obtained from the knowledge repository produced by the Fashion in Process Research Lab at the Design Department of Politecnico di Milano, of which both authors are members. The data were generated from the research conducted by the research Lab (DGGROW, Mapping Sustainable Fashion Opportunities for SMEs, 2019; Erasmus+, FashionSEEDS, 2019) and the doctoral research of one of the authors (D'Itria, 2022). This phase allowed us to map 48 international companies located worldwide. The composition of the company was almost homogeneous. They were apparel brands (97%) and accessories brands (3%). Of the 48 companies mapped, four were selected as case studies. All these companies have addressed resource care practices by working on waste elimination aspects. Dobilaite et al. (2017) state that textile waste can be classified into two categories: Pre-consumer (production) waste generated by textile and clothing manufacturers and post-consumer waste generated by the public.

These companies use pre and post-consumer waste to reinput them in their production cycle. Tab . 1 represents how the companies are grafting the fashion supply chain. They are recovering different kinds of waste from different supply chain stages to reinput them in the design step. Such waste ranges from deadstock, textile waste, which includes all the waste generated during the production of the textile, to fashion waste, which includes the finished fashion garment (Clero, 2023). All these reinputs are processed according to different design-driven strategies. They all address the involvement of design in reconfiguring

an increasingly intricate relationship between multispecies understood as resources and their users.

A selection of case studies, which emerged from this research phase, is presented here as evidence of the narrated process. Cases such as Bug Clothing and Tonlè represent actors of change operating through design to repurpose industry resources – deadstock and production leftovers - that would have otherwise gone to landfills (Eike et al., 2020; Hawley, 2006). Tu Lizé and Garbage Core are examples of designers maximizing the value of resources by proposing alternatives to the need for early dismissal of garments, which is more semiotic than physical, and rethinking the entire production system with their upcycled garments (Sommermeyer et al., 2023). Such case studies explore a metamorphosis of fashion industry waste. The purpose of applying such methodological approaches is to focus on particular cases to model the whole context that embraces many different factors and attributes to frame the illustrative knowledge (Rashid et al., 2019).

3. RESULTS AND DISCUSSION: EXPLORING A POSTMODERN ECOLOGICAL APPROACH

This paper codifies the data collected to model the directions that drive current design-led practices related to new ideas of exploiting the existing anthropogenic mass for the fashion industry. This section presents the results of the adopted methodology. It introduces several case studies to describe the main approaches identified by the study that could be an exemplar for eliminating waste from the fashion supply chain. Such pathways could support designers in promoting a closed-loop system for rethinking resource exploitation, recovering secondary raw materials, or reactivating the fashion product – at different stages in the supply chain (Tab. 2).

Operationally, the study identified two macro directions in working with waste through design-driven practices. They emerged from the case studies analysis. Companies such as Bug Clothing or Tonlè are working to capitalize on the rethinking of waste for their products. They are developing actions to foster new approaches to significantly reduce textile waste by experimenting with the designer's role in creating characteristic pieces enhanced by their materials' attributes (Albuquerque et al., 2023). On the other hand, companies like Tu Lizé and Garbage Core are working on eliminating waste by strategically extending their products' semiotic dismissal. They work on exploiting both the tangible and intangible value of the scraps from which their products were made and their conscious manufacturing attributes (Barosi et al., 2023). The study examined these directions and how they work towards a common goal but, at the same time, are different. The analysis aims to describe the identified behaviors comprehensively. However, the authors acknowledge the limits within which these behaviors are performed and investigated. Therefore, despite reporting a common scope, each case must be understood and evaluated in its specificity. This must be done to the context, territory, and actors involved. The selected cases are presented in the following sections.

3.1 A metamorphosis of fashion industry waste: Leftovers recipes

The first direction refers to companies working to reactivate the system by redesigning the processes of access and use from materials to production, lessening the anthropogenic mass impacts. In their practice, fabrics and leftovers, dead stock, or unsold can be the starting point for a new production cycle for designing something different through design-driven solutions (D'Itria, 2023).

Companies such as Bug Clothing operate according to what authors define as an *eco-logic rethinking*. This means

looking for high-quality fabrics to make new collections by exploiting materials from the haute couture houses that they are stocking and not using. They have a very focused perspective and an environment-driven ethos. Companies concentrate on the ecological dimension to engage in design-driven practices that aim to recover waste to lessen their own impact on the Planet. Through the strategic alliance among fashion actors, what is overplus for one player becomes raw materials for the other. These practices preserve resources as well as create positive synergies toward sustainability.

Tonlè operates according to a *system-logic*. They rethink the waste created by the system to minimize its production as much as possible. They are trying to eliminate waste before it occurs, which implies the need to support a production system and market for waste planning in the textile industry. Although brands may have different design directions, Tonlè exploits the common element of intentional and thoughtful design that considers minimizing the impact of garments through action on waste. They represent actors of change operating through design to rethink industry dead resources that would have otherwise gone to landfills and contribute to the sector's impact.

3.2 A metamorphosis of fashion industry waste: Pre-loved makeover

The second direction characterizes the strategies that fashion companies adopt through a project approach that enhances the use of discarded fashion goods' materials and components to transform them into new, high-value products (Cuc & Tripa, 2018). They adopt strategies to implement sustainability by providing an alternative to consumption by retaining those resources that would have otherwise gone to landfills, contributing to exacerbating the anthropogenic mass. They work on embracing imperfection, repairing clothing, or providing industry and consumers with the

necessary knowledge to care for their garments and materials (DeCastro, 2020; Fletcher, 2016).

Companies such as Tu Lizé are now reactivating fashion resources from obsolescence. They redesign a garment from a simple act of renewing the appearance of an item to stimulate people to take care of that resource and also educate them. This case explains how the fashion sector strives to eliminate waste to mitigate its impact on the planet and facilitate conversations about sustainability across the fashion industry by maximizing the value of resources by proposing alternatives to the need for an early semiotic dismissal of garments and rethinking the entire production system with their upcycled garments.

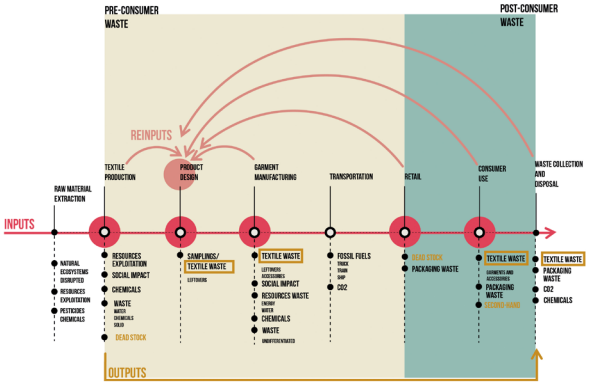
Garbage Core is a case that represents how some companies are reactivating people's care for a garment. These companies strategically exploit design actions that produce emotional garments that give old clothes and materials a second life. Companies operating in this category aim to keep the garments' history, their previous lives, and the people who wore or created them. Storytelling related to defects, whether scratches, stains, or holes, makes the traces of a previous life explicit and provides an affective dimension that establishes a caring relationship between the person and their garment. This can be a way of making a statement to give the garment an expanded lifespan and create awareness of resources and their management.

CONCLUSIONS

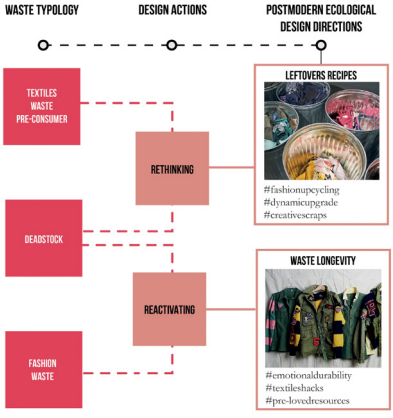
The results discuss how more process innovations are developed through the implementation of new ecological and symbiotic design-driven approaches: Establishing a cooperative or interdependent relationship between actors along the fashion supply chain – from textile/materials suppliers to waste management companies – to offer resources a second life as they are turned into a new product to

take care of. These qualitative knowledge implementations consider a mix and aggregation of new productive patterns enabled by innovative technical know-how to offer new consumption scenarios. This is about resources or items that get re-adapted and re-purposed and whose lifespan is, therefore, expanded towards durability by a design-driven act of resistance to destructive Anthropocene systems (Payne, 2019; Brooks et al., 2018). According to the conference's aim, such an act can enable envisioning the possible futures generated by these phenomena of environmental awareness for exploiting the processed anthropogenic mass as an existing resource for the fashion industry.

TABLES



Tab. 1 Supply Chain Representation: Inputs, Outputs, and Reinputs.



Tab. 2 Supply Chain Representation: Inputs, Outputs, and Reinputs.

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