

Circular textile value chains

Business case:

Circular design techniques for extending the lifetime of fabrics and garments, as well as improving textile fiber recycling

The challenge

The fashion industry generates 92 million tons of textile waste annually¹, contributing to significant environmental degradation. Linear production, characterized by a “take-make-dispose” model, exacerbates this issue. Garments are largely designed to fulfill fast fashion rules, neglecting the importance of utilizing techniques that would improve durability, facilitate disassembly for subsequent recycling, enable recovery of fibers to produce regenerated fabrics, and utilize deadstock for upcycled collections.

Circular design effectively minimizes waste and maximizes resource efficiency throughout a product’s life cycle. It prioritizes the choice of more sustainable fabrics and discourages using fabrics made with fiber blends to maximize the fiber recovery for closed-loop recycling back to fashion and to reduce the carbon footprint of garment making. It involves strategies to extend the lifetime of garments, making them easier to repair and disassemble for recycling or repurposing.

Adopting circular design practices could reduce global carbon emissions by 44%, energy use by 40%, and water consumption by 20% in the fashion sector. Notably, extending the life of clothing by just nine months could cut carbon footprints by 20%².

Therefore, transitioning to circular design is imperative for the fashion industry to mitigate its environmental impact, addressing the alarming levels of waste, resource depletion, and the associated impact on our environment and climate.

The scope and actions of the pilot project

Beginning in 2019, the United Nations Industrial Development Organization (UNIDO), under the regional EU-funded SwitchMed Programme, demonstrated how circular economy practices can improve environmental performance and competitive advantage in Morocco’s textile value chain.

In 2022, UNIDO initiated a pilot project aimed at demonstrating circular design practices and promoting the culture of sustainability to fashion design educators, young creatives, and students in Morocco. The project was carried out in partnership with Casa Moda Academy, a leading institution that offers training to aspiring fashion designers in Casablanca, Morocco. Two local companies, Confetex Albo and Evlox, provided students with post-industrial waste, discarded finished garments, and unsold items from their production, enabling the students to learn how to create fashionable clothing while minimizing waste and promoting sustainability.



Photo: A. Izral

The main actions of this pilot project were:

- Building national capacities at the national fashion design school (Casa Moda Academy), setting up a circular fashion education program, and mobilizing a pool of highly qualified international lecturers on sustainable fashion design to deliver four workshops targeting students, young creatives, and fashion design educators in Morocco.
- Oversee the preparation of a final design project developed by students and young creatives that can integrate the principles of circular fashion design, producing the first creative circular capsule collection.
- Promote the project’s results at a local event and showcase the final selection at the international WHITE Sustainable Milano (WSM), taking place during the 2024 Milan Fashion Weeks.
- Support the Casa Moda Academy in integrating the learning experience and introducing a specific program on sustainability and circularity as part of the curricula for fashion designers.

Building national capacities for circular fashion design

International lecturers were engaged to bring their expertise into the project and four workshops were designed, providing their specific angle on sustainability and circular design practices.

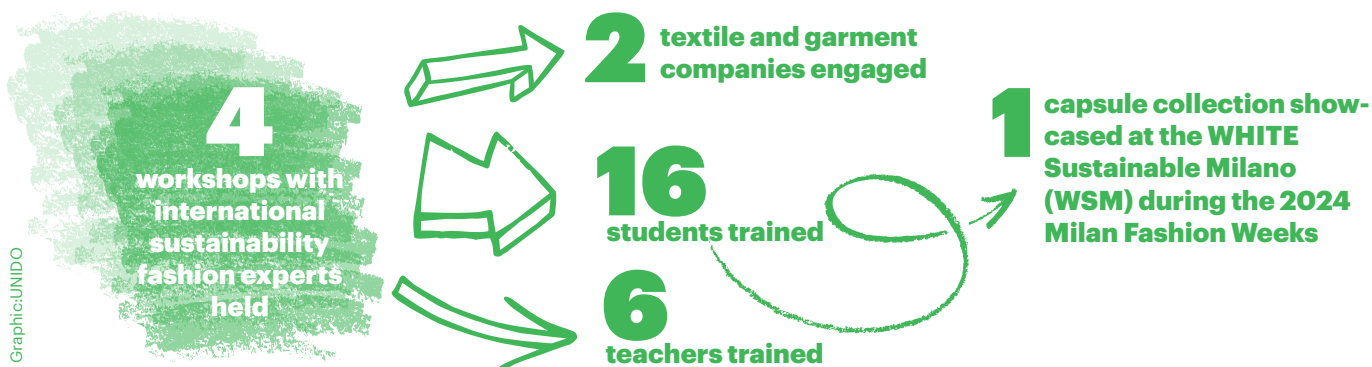
The first workshop, “Principles of Sustainability and Circular Economy,” covered theoretical and practical aspects of sustainability and circular economy concepts, explicitly focusing on the fashion system. These two topics have never been included in the Casa Moda Academy program, and the students and the teachers were eager to improve their knowledge in this field.

Participants learned about the peculiarities and practices of sustainability and circular economy principles within the fashion industry, and the workshop also addressed the issue of greenwashing and the importance of metrics, transparency, and traceability to substantiate sustainability claims.

¹ Ellen MacArthur Foundation, «A New Textiles Economy: Redesigning Fashion’s Future» (2017)

² Ibid.

Pilot project in numbers



The second workshop aimed to explore new criteria for selecting more sustainable fabrics and materials for accessories to facilitate reuse or recycling. The workshop covered various topics, including using traditional materials, the importance of recycling in fashion, green product standards and certifications, and the potential of new materials and technology. Students also learned about the challenges of creating a clean and safe fashion supply chain, including using safer and greener chemicals. Overall, the workshop aimed to encourage students to think creatively about how they can use materials in fashion more sustainably.

The final two workshops were aimed at two very practical techniques, such as design for recyclability and upcycling. The “Design for Recyclability” workshop was designed to teach students about the importance of creating clothes that can be recycled or re-designed to become recyclable. The workshop had a more practical focus, where students learned the best ways to design clothes. During the practical session, students were taught how to create patterns and sew clothes more sustainably, and at the end of the workshop, they were able to review and finalize the clothes they had made.

During the final workshop, the focus was on the concepts of Reuse and Upcycling. The participants were provided with hands-on experience in upcycling old deadstock or second-quality garments. This helped them understand

how to manage excess inventory before it becomes waste, including sourcing and logistics for upcycling. Additionally, the workshop provided insights into building a brand identity based on sustainability, circularity, and creativity.

Promoting the capsule collection from the circular design process

In December 2023, a committee made of top lecturers, the UNIDO Fashion Industry expert, and the Director of Casa Moda Academy awarded from all the participating students’ contributions ten fashion projects that will be showcased at the Milano Fashion Weeks in February 2024 at the WSM.

A video documentary has been produced to showcase the students’ entire creative and production process. The documentary will be exhibited at WSM in February 2024. Additionally, aesthetically engaging photographs featuring the fashion context of the samples will be displayed at an exhibition in WSM in February 2024. The exhibit at WSM is expected to attract over 27,000 visitors.

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The SwitchMed project was important for the Casa Moda Academy, as it helped us understand how to manage circular projects and teach our students a contemporary way of thinking about clothes. We are considering including a specific certification for “sustainable creation” with a program dedicated to circularity and sustainability for our learners.

Ms. Wafaa Khamlichi
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